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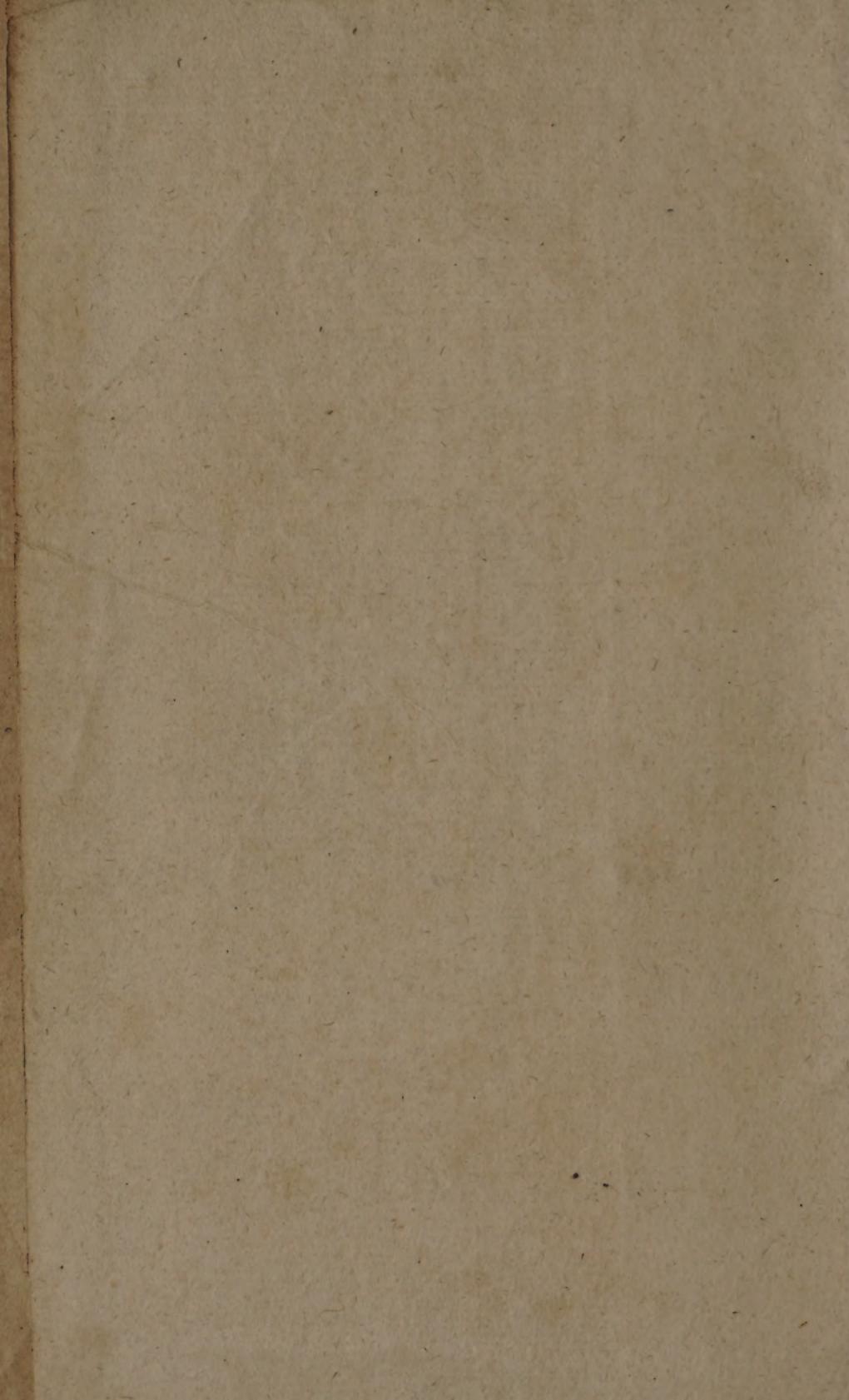
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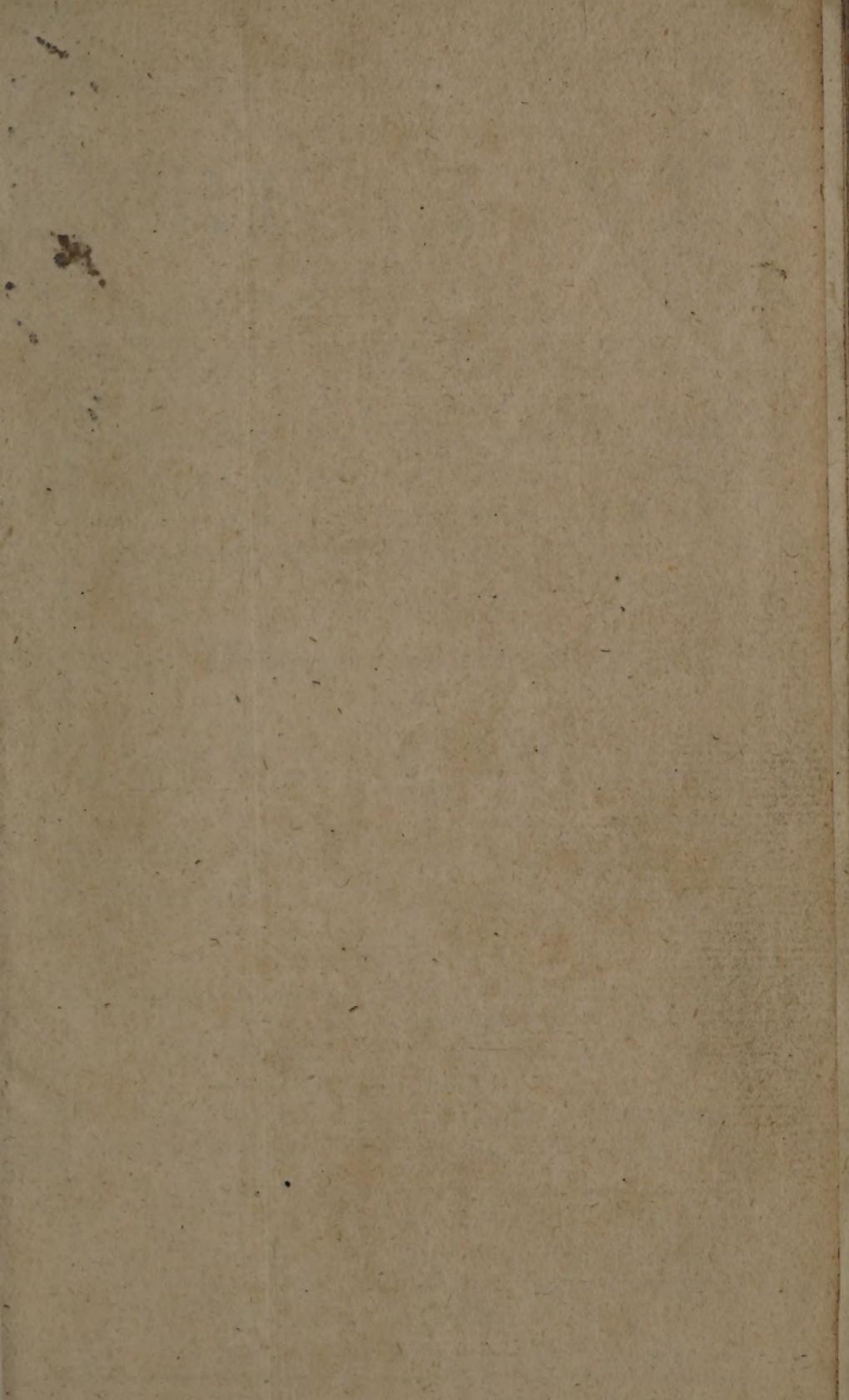
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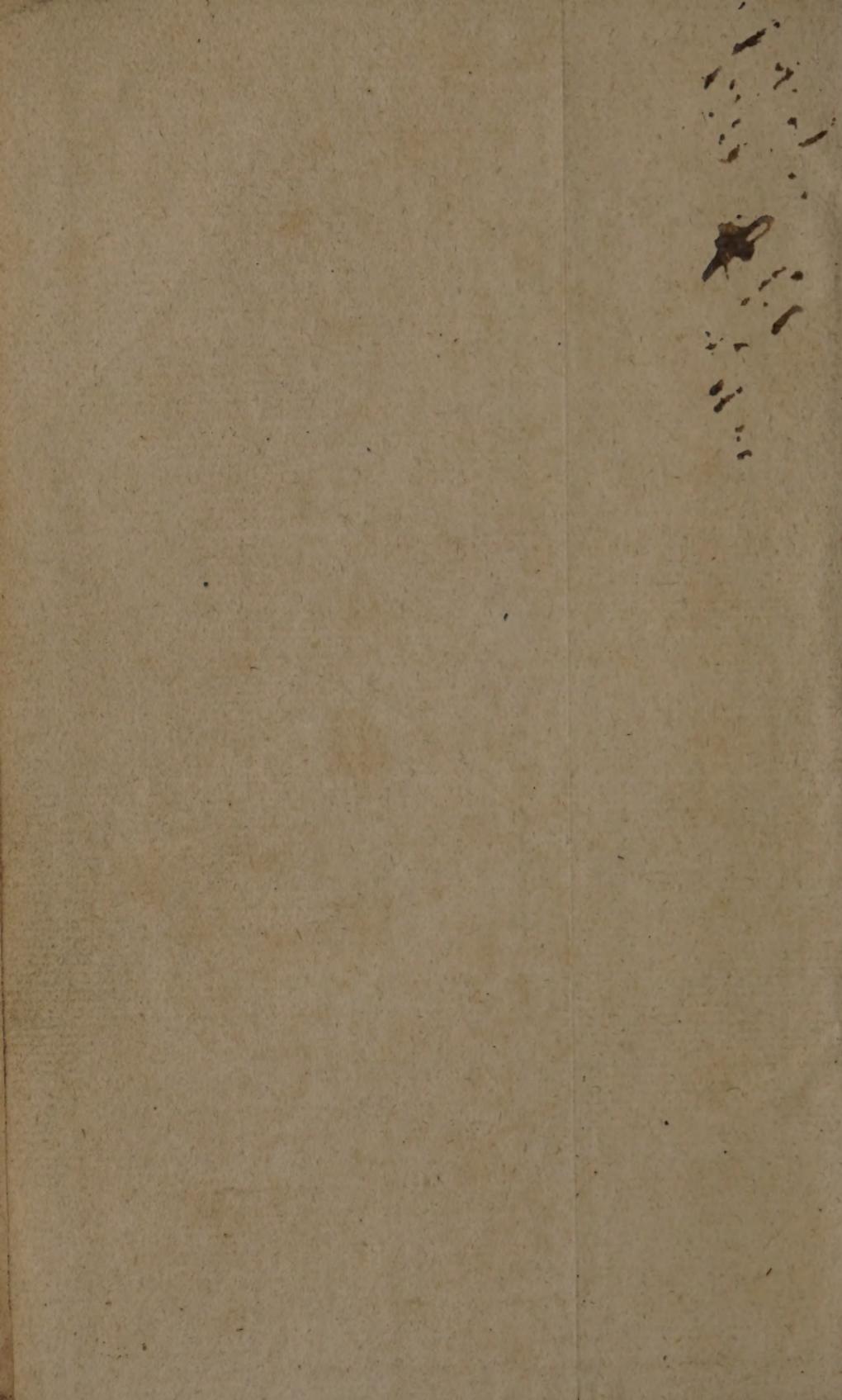
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A COMPLEAT TREATISE OF THE *Stone and Gravel.*

Comprising its Origin, Symptoms, best way of Easing, true Method of Cutting, and divers remarkable Histories of Curing many cruelly afflicted Patients.

WITH AN
Ample Discourse on LITHONTRIPTICK;
OR,
Stone-breaking Medicines.

By JOHN GREENFIELD, M.D.
of the College of Physicians, LONDON.

T H E W H O L E

Illustrated with proper Figures of the Operation, and Descriptions on Copper-Plates, of some uncommon Stones, taken from Persons He has Cut and others.

Absolutely Necessary

To be Read by Persons labouring under that Dangerous and Dreadful Disease, or the suspicion thereof.

L O N D O N :

Printed for Ralph Smith, under the Royal-Exchange,
and B. Lintott, at the Cross-Keys, between the Two
Middle-Temple-Gates, Fleetstreet. 1710.



10 NOV 1960

TO THE
High and Mighty
PRINCE

Thomas Duke of Norfolk,
Earl Mareschal and Hereditary Mareschal of England: Earl of Arundell,
Surrey, Norfolk and Norwich; Baron Mowbray,
Howard, Segrave, Brews of Gower, Fitz-Alan of Clun and Oswaldestre, Maltavers, Greystock, Furnival, Verdon, Lovetot, Strange of Blackmere, and Howard of Castle-Rising,

A 2 First

First Duke, First Earl, and
First Baron of *England*,
and Chief of the Illustri-
ous Family of *HOWARD*.

May it please your Grace,

AS it is an unspeakable Satisfaction to me, that I may offer this little Treatise at your Grace's Feet, when I consider the Reputation, and other Advantages it will receive from the Patronage of your Illustrious Name; so on the other side I must Blush, and Humbly ask Pardon for my Presumption, when I reflect on the unworthiness of the Performance.

Dedications are commonly design'd by Authors, as Panegyricks to their Patrons, from which rule I shall deviate for two Reasons.

First,

The Dedication.

W

First, my Lord, both your Name and your Virtues are so Celebrated throughout Great Britain, that it is impossible for any to see the one, without being put in mind of the other.

The second reason, why I dare not Exspatiate on your Grace's high Merit, is your Character, from which I am sure, that you are as averse of hearing your own Praises, as I am uncapable of setting them forth. I am unacquainted with the Justness of Expression, and a Stranger to Courtly Language.

Thus much I know; that, when such as I, are admitted to make their Addresses to Persons of the Duke of Norfolk's distinguish'd Quality, and refined Conversation, the only way not to be troublesome, is to be short: In sense of which I beg leave, that, wishing your

Grace all imaginable Blessings, I
may have the Honour of Subscri-
bing my self in the most respectful
manner,

Your Grace's
Most Humble, most Obedient,
and most devoted Servant,

JOHN GREENFIELD.

THE

THE PREFACE.

Experientia est Stultorum Magistra, is an admirable saying, but misunderstood by abundance, for it means not, that Fools are taught by Experience only, but that, Practice is always Erroneous, when it is not built upon a good Theory; and yet the finest Speculations, and the most Sublime Thoughts are worth little to Mankind, if they don't put something in action, so as to be made usefull to Humane Life: For Virtus in Actione consistit. I am altogether of the Opinion of a certain Author, who says; Anatomy, Chymy and Botany, and the whole Circle of Sciences, that refer to Physic, are only serviceable,

when they conspire to improve a regular and safe Practice; when they carry on any different design, their Positions are deservedly neglected, as idle and useless Curiosities, and the only plea, they make, is the Diversion and Entertainment of a few, whose heads are turn'd that way; whereas the advantage and benefit of the World, is the result of Practical Truths.

That Great Man Sylvius de le Boe, under whom I had the happiness to be bred, had never been call'd the Star of the University, and his Theoretical Notions would never have been receiv'd with that general Applause, which they deservedly met with, if they had not been the Foundation of a firm and judicious Practice.

I have been a Physician many Years, have acted with Reason and Caution, and always been able to give a rational account of my proceedings with my Patients ; and have not only been all my Life conversant in what belongs to the Practice of Physic in general ; but likewise applied my self with great diligence to the difficult Operation of Lithotomy, and am more particularly acquainted with that grievous Distemper the Stone ; by which I have not only been consulted by great numbers of Patients, that labour'd under that Miserable Torture, both in the Bladder and the Kidneys, but likewise from the Vicinity of the Symptoms, have had an opportunity of treating the other Diseases, that are incident to those Parts ; and therefore to be more serviceable to my Generation, I was

was willing to impart to the World some useful Observations, which I have made in this Distemper, and for its Ease and Cure, as far as practicable, some often tried and approved of Medicines.

To do this I was forced to trace this Distemper through all its Signs and Causes, and consequently oblig'd to say a great many things, that have been said by others; because it was otherwise impossible to render those remarks usefull, for which I wrote the whole; I have also given the exact Delineation of some remarkable Stones which I and others have Extracted, and taken out of the Bodies of both Sexes, and to make the Treatise more compleat, I have inserted a full Description of Lithotomy, and to that end borrowed the Figures and Directions of that Ingenious French-Man, Monsieur

sieur Tolet, with little alteration, and not being one of those, qui nisi quod ipsi dixerint, nil recte dictum putant, I have contented my self with only adding to his Text, some Histories and Observations, as they have occur'd in my Practice. I have likewise treated in a particular manner of those Remedies, that under the Specious Name of Lithontriptics make such a great bustle among us ; and given the necessary Caution against several Medicines, that, tho' of admirable Vertue in a great many Cases, are very Mischievous, when abused ; I have laid open the Danger, that generally attends all unskillful Applications.

That I have made no greater Additions of my own, and kept from the Eyes of the Vulgar some noted particulars, as to the Practice
of

of Lithotomy, &c. I desire to be pardon'd: Whoever dies with any usefull Secret, is unjust to the World, but be, that reserves nothing from the public view, is as injurious to his Successors; and how this (being orbus prole) could be my plea, I'll let you know.

It was common amongst the Ancients, that those who would not Marry, or such as were Married but had no Children to inherit, what they had, adopted others for their own: Nay, it has been the Opinion of many, that those, who made themselves Parents by Adoption, were of the two the most likely to have Comfort of their Children; because such were at liberty to chuse those whom they were sure to like, whilst others, that trusted to a natural Issue, always ran a great hazard, because of the uncertainty

certainty of what and how they might prove.

I am persuaded, Reader, that by this time you think it strange, I should mention a thing, which at first sight seems so little to my purpose : But your wonder will cease, when you are acquainted with my Reason, The occasion is this : Ever since it has pleased God to deprive me of, and take to himself the Children, with which he had blessed me, I strove to agree with some Ingenious Young Physician, that should delight in Lithotomy, to whom I might freely and without reserve impart the fruits of so long a Practice, as well as early Studies; which at last I accomplish'd to my Hearts desire, in pitching upon the Skillful Mr. Benjamin Marten, whose Industry and Application I have assisted with the many Observations, which

which an almost Forty Years Experience has furnish'd me with.

I thought fit, Reader, to acquaint you with this for two Reasons ; First, because being known in a great many County's, where I have Cut for the Stone with Success, I would take care, that those, who are not willing to trust any but my self, whilst I am alive, might not be disappointed, but know where to have one, in whom they might safely confide, when I am Dead ; tho' I thank God, I yet enjoy a perfect Health, and through his Mercy, may boast of an Aquilæ Senectus, notwithstanding the Malice and notorious Falsities of my restless Adversaries, who have industriously spread amongst the People that Age has made me incapable of Practice, that my Sight is bad, my Hand-shakes, my Strength fails, nay,

nay, that I was Dead, and what not? The second reason I have for telling the World, what is between the said Mr. Benjamin Marten, Physician, and my self, is, to obviate the ill design of those injurious Reports, by acquainting the publick that I have an able Assistant, from whom I have kept no Secret, either in Physic or Lithotomy, but communicated and instructed him in all the parts thereof, and who can (if any should be timerous and doubtful of me, tho' without cause) dexterously perform the Operation, my self standing by. However that through the infinite goodness of God I am still Master of my Intellects, have as good Strength, sound Memory, firm Sight, and steady Hand as heretofore, I appeal and refer my self to the Judgment of those Honourable Physicians and my very good

good Friends of the College, with whom I am in great Amity, and of whose Society I have the Honour of being a Member. And as my former Skill and Capacity, in what I pretend to, could never deservedly be call'd in question; so now the Persons I have lately successfully Cut and recover'd; puts my present Ability out of all doubt, and shews the ill nature of those who so falsely Asperse me; 'tis but a little while since I Extracted a Stone as big as an Hen's Egg from a Young Gentlewoman, of Eighteen Tears of Age, retinet Urinam, there was present the most Ingenious and Worthy Physician Dr. Cole; this puts me in mind of a Case I formerly met with, not unworthy relating, 'twas of a Young Lady of Stafford-shire, Aged Fifteen Years, from whom on the Nineteenth of May,

1685,

1685, I drew a Stone larger than Hen's Egg and recovered her ; she went afterwards to Tunbridge, where by drinking the Waters another Stone about an Inch and half long, and something better than an Inch round, was forc'd out of one of the Ureters, (where it had been breeding,) into the Bladder ; I was again sent for, and considering the bigness of the Stone, and how lately the Parts had suffer'd a great Dilatation, I concluded it might be brought away by Medicines, without the use of Instruments ; therefore I prescribed strong Diuretics, which, forcing powerfully, caus'd the Stone to burst from her without much Pain ; she quickly went home, and in a few Years Married, and has since been the happy Mother of Fourteen Children : I could give the names of a great many Persons that I have

lately Cut, and Extracted Stones from, but I must not, having no leave; and considering the Censorious and Nice Age we live in, I doubt not, but what I do now will be call'd Quackery by some; but that every one may judge whether it be or not; I desire my Reader's Patience for a Moment longer, whilst I say a Word or two upon this Matter.

Pride and Luxury have brought up many Fashions, and have made things either commendable or indecent, that in themselves are indifferent, and do neither good nor harm, as for Example,

Surgeons heretofore had all of them Signs, and their Shops were in view of the World; but that most of the latter are removed out of sight, and the former taken down, is not because they now desire to be

more

more obscure, but because it is the Fashion to have only their Names Writ on the Front of their Houses, with an Addition of what they are ; and some not satisfied with that, add likewise what they were ; which shew's that they are still as willing to be employ'd as ever ; for tho' the way of making themselves known is Genteelier as they imagine, it is not less effectual ; unless you think that a small Sign, hanging amongst so many others is more taken notice of, than those vast Characters of Gold upon Black, that cannot be overlook'd by any Mortal that has sight enough to shun a Poet.

Now what looks well in a Surgeon would be ridiculous in a Physician, and only because it is not customary, or to be plain, because it is infra dignitatem, and they think themselves above it.

No

No Country for the bigness has bred more Physicians that are Famous for their Writings than the Netherlands; and yet in Amsterdam, the Metropolis, all Doctors of Phystic are oblig'd to have their Names and Profession writ on the outside of their Houses, insomuch, that those that should refuse to comply with this Custom, would not be counted as such.

By this means in time of need every body knowes where to have a Physician, without the least detriment to any; for those that are Famous, and whose Names are up there, are sent for a great way, as well as here.

No Man is a Quack for using fair means to be known, but he is a Quack in any Trade or Profession whatever, that flying from the Occupation he was brought up to, Invades

vades the Employment and the Property of others ; such as Insolently preferring themselves above Men of real Skill, by Bragging and Lies, impose upon the Credulous, and Impudently meddle with what they never understood, of which Cattle it was to be wish'd, we had not such numbers as we have.

That Common-wealth and only that (says Camerarius) is happy, where that of Horace is true.

Navim agere ignarus timet ; A-
brotanum ægro
Non audet, nisi qui didicit, dare ;
(quod Medicum est
Promittunt Medici ; tractant fa-
(brilia fabri.

But with us fabri tractant Me-
dica, and there is no Trade so vile,
nor Calling so mean and abject, but
it

it yields some Pretenders to Physic, without regard of that of Persius !

Publica lex hominum, Naturaque
 (Continet hoc fas,
 Ut teneat vetitos insertia debilis
 (actus
 Deluis Helleborum certus compes-
 (cere punto
 Nescius Examen ? Vetat hoc Na-
 (tura Medendi.

But the audaciousness of our Quacks, if they can but 'scape the common Law of the Nation, is not to be frighten'd with the Publica lex hominum.

The Law forbids a Fuller to meddle with Dying, and one Trade may not encroach upon another ; And shall the Practice of Physic alone (says Whitlock) be like the Spanish-

Spanish-Trade, free for any? Several have wonder'd that where Clippers and Coiners are put to Death, the bold Empirics, which are more hurtful to the Publick should go unpunish'd, since (as Forestus wittily says) the former only deface and corrupt the Image of Cæsar, but the latter the Image of God himself.

And now I beg of the Candid and Impartial Reader, that he would first consider, the swarms of those Ignorant Imposters, I speak of, that so boldly sound their Trumpets, and then judge whether the modest relation of truth, which I have given deserves the Name of Quackery; and whether what I have said, is unbecoming a Legal Physician, that has

has spent so many Years in the Study and Practice of Physic as I have done ; after which I shall recommend my self in his Favour, and concluding wish him to fare well.

John Greenfield.

From my House against
the Sun-Tavern, in Thread-
Needle-street, behind the
Royal-Exchange, London,
May 10. 1710.

Note, What Litteral Faults may
have escap'd the Press, the
Reader is desir'd to Correct
with his Pen.

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A

TREATISE OF THE *Stone and Gravel.*

CHAP. I.

Of the Stone and where it is bred.

CHAP.
I.

THE Stone in the Body of Man is so much like to that of the Earth, that it has the same denomination ; being called in Latin *Calculus*, which signifies a little Stone, hard and of Earthy intermixture :

B

CHAP. termixture: in Greek $\lambdaιθος$, The Disease.

I. ease $\lambdaθιαντας$.

That in the Kidnies $\lambdaθιαντας$, by the name of the Kidnies, which they call $\lambdaθης$: And though under that name all Diseases of the Kidnies may be understood; yet because of the Greatness and Violence of the Pains of the Stone, whereby it exceeds all other Diseases of those Parts, therefore this not undeservedly takes the Name $\lambdaθειαντας$, (*Nephritis*) as if we should call it $\kappaαι \lambdaθοντας$ the Disease of the Kidnies.

It is apparent therefore, that under the name of the Stone we understand a solid and hard Body, grown to the form of a Stone, especially in the Reins and in the Bladder. It is super-vacaneous to Enquire whether it be a Disease or a Symptom, such are only questions about a Name, and of no use even

even in Speculation ; because in several respects they may be diversly solved, tho' I cannot think that in a proper Sense it should be called a Disease, (notwithstanding Galen's Opinion) seeing there is no evil disposition of a Part, but what either follows or changes the disposition of that Part ; but it may be called a Cause, being apt to cause Obstruction, Exulceration, great Pain, and the like.

That the Kidnies are Pregnant with small Stones , Experience makes us sensible, which with dolorous Pangs, like the *Uterus* in Pains and Labour, they sometimes send forth. Of which this Question cometh to be considered.

Whether only in the Cavity of the Kidnies, and those Passages of the Ureters the Stone is generated, or else in the *Parenchyma*, or sub-

CHAP. stance of them? And hereof neither can be denied, we having the Testimony of many Eminent Physicians, *Eustachius*, *Forestus* and others, whose practice have sufficiently prov'd it; but a Stone growing in the Substance of the Kidney, if it becomes large, cannot fall into the *Pelvis* thereof, without dilacerating and tearing it, because those Caruncles, by Anatomists called *Mammillary Processes* (by which only there can be a Passage) have so small Perforations, as will scarcely admit a Hair of the Head.

What has been said of the Stone in the Kidney, is near the same to be understood, concerning that in the Bladder; where it is evident also, that it grows in two places:

The one in the Cavity of the Bladder, where it grows in the midst of the Urine; The other at that

end

end of the Ureters, inserted in the CHAP.
Bladder which before they enter I.
thereinto, do pass its double Mem-
brane one Fingers breadth; and in
the very Duplicature of this Mem-
brane there often grows a Stone
firmly knit to the Tunicles of the
Bladder, and appears just as an
Acorn hangs in its Cup.

That Stones are likewise bred in
other Parts of our Body, besides
the Bladder and Kidnies, is aver'd
by the Testimony of both Ancient
and Modern Physicians.

That they are bred in the Guts,
Avicen and other Authors tell us;
Dr. *Acosta*, a *Portugal* Physician re-
lates, that a certain Patient of his
had a long lasting Looseness, which
not giving way to many Reme-
dies for a long time applied, was
at last perfectly Cur'd upon his
voiding a Four-square thin Stone,

CHAP. as here under delineated, tho' he
I. was before given over for Dead,
being so wonderfully worn by his
Looseness.



It is very remarkable what we read of a Young Man, who being extremely hot of Constitution, spare of Flesh and very prone to Lust, keeping no regular Course of Diet, but pampering his Belly, by fitts voided for two Years together numbers of Stones with his Excrements; before he found they were Stones that came away, he suspected them by the Indisposition he felt, to be Worms, he always had cruel Pain in his Flanks and lower part of his Belly, before he voided them, and when they came away,

he

he was easie : Some of 'em were CHAP.
round, and as big as Hasle-Nuts, I.
exceeding compact and of an Ash
colour ; he had divers Physicians
who differ'd about the cause of them,
some saying one thing, an others
another, and as each diffe d as to
the Cause of their breeding, so e-
very one variously prescribed Re-
medies, which after all trials had
no effect as to the Cure ; for at
length the Malady being exaspe-
rated, the Patient fell into grievous
Torments of his Belly, with sup-
pression of his Excrements, which
growing worse and worse, beyond
the help of Emollient and Evacu-
ating Glisters, and other Remedies,
the Pain rather becoming thereby
ficer and fiercer, the Patient Died.
The Body being open'd, there
was found a Stone in form and
bigness, resembling a Chestnut,

CHAP. sticking fast to the Gut Colon, which
I. had caused the forecited Tragedy.
And others have been known to void at the same time Sand and Gravel by Urine, and many Stones as big as Capers by Stool.

Ambrose Parey, in the 19th Chapter of his Book of Monsters, gives the following Account, John Magnus, says he, ‘The King’s most Learned and Skilfull Physician, having in Cure a Woman, troubled with cruel torments of the Belly and Fundament, sent for me, that by putting a Speculum into the Fundament, he might see if he could perceive any discernable Cause of so great and Pertinacious a Pain; and when as he could see nothing, which might further him in the finding out the Cause of her Pain, following reason as a guide, by giving her after Glysters and Purgations,

gations, he brought it so to pass, CHAP.
that she at length voided a Stone I.
at her Fundament of the bigness of
a Tennis-ball, which once voided
all her Pains ceased.

But here it is to be observ'd, that Stones are not first generated in the Guts, by reason of their Vermicular Motion which hinders any such Concretion, but those found there, or voided by the Fundament, are bred in the Gall Bladder, and fall through the *Ductus Cholidochus* into the Guts, where according to their Magnitude and Figure they may stick, grow bigger, and cause dreadful Symptoms.

Of a Stone in the Womb we read in *Hippocrates*; who says ' That the Servant of *Dyseris*, in *Larissa*, when she was Young, in using Venery, was much pained, and tho' sometimes without Pain, yet never

' Con-

CHAP. I. Conceived: But when she was Sixty Years old, she was pained usually in the Afternoon, as if she had been in Labour; and one Day having Eaten many Leeks in the Forenoon, she was taken with very violent, and far exceeding all her former, Pains, and felt a certain rough thing, rising up in the Orifice of her Womb. But she falling into a swoon, another Woman putting in her Hand, got out a sharp Stone, of the bigness of a Whirl, or Leaden Plummet, and then she forthwith became well and remained so.

Hollerius lib. de Palpitatione Cordis,
Cap. i. Tells us, That a certain Woman, who for the space of four Months was troubled with an incredible Pain in making Water, being open'd when Dead, two Stones were found in her Heart, with many Abscesses, her Kidneys and Bladder being whole. Za-

‘ *Zacutus Lusitanus* gives the fol-
‘ lowing Account of Stones in the CHAP.
‘ Lungs: A Man of Forty Years of I.
‘ Age being exceeding subject to Di-
‘ stillations of Rheum, was not able
‘ to breathe, unless he always sat up-
‘ right, in which posture he pass'd
‘ many Nights without Sleep: At
‘ length a shortness of Breath seiz'd
‘ him so violently, that he was al-
‘ most choak'd, his Physicians pre-
‘ scrib'd sundry Remedies; as Pur-
‘ gations, Pectorals, and other Me-
‘ dicines, usually given to scour a-
‘ way clammy Humours, wherewith
‘ the Cavities of the Lungs are
‘ wonted to be stuff'd, and being
‘ oppress'd with a dry Cough, ex-
‘ tream Anxiety & Clammy Phlegm;
‘ upon a strong forcing to Cough,
‘ he brought up with the Phlegm an
‘ Oblong hard rough Stone, resem-
‘ bling a Date-Stone, which being dis-
‘ charged

CHAP. I. charged he was restored to his former Health by the application of convenient Remedies.

A certain Gentleman for Three Years together, at fits, brought up by Coughing every Day Seven times or oftner, Three or Four Stones, White, Hard, and very much resembling Hail-Stones for Form and Colour; this Man being otherwise in good Health, refus'd all Remedies, but to his cost: For a most vehement Cough seizing him, a great Vessel of his Lungs broke, and by his often and plentiful Bleeding, he was at last taken off by a Consumption.

Banschius, gives us four Examples of Stones in the Stomach, *Ephem. Med. Tom. 3. Observ. 18.* the first is out of James Dobu Zuch, who Reports, 'That a certain Woman, after long Pains in her Stomach, Vomited

‘ Vomited up two Stones, about the CHAP.
‘ bigness each of an Almond, and I.
‘ was presently freed from the Gripes:
‘ The second out of *Laurentius Sholtius*,
‘ who Writes that a certain Person
‘ long troubled with cruel Pains in
‘ his Stomach, at length Vomited up
‘ a very large Oblong and hard
‘ Stone, upon which his Pain ceased:
‘ The Third out of the same Author,
‘ of a Woman, who at Forty Years
‘ of Age was troubled with a Pain
‘ and Swelling of her Stomach,
‘ want of Appetite, and continual
‘ watching, in whose Stomach, after
‘ she was Dead, were found as many
‘ Stones as a Man could hold in the
‘ hollow of his Hand, which being
‘ long kept, mouldred away & crum-
‘ bled into a kind of Yellow Sand.

‘ The Fourth Example is of Count
‘ George of *Oppendorf*, in whose Sto-
‘ mach were also found several little
‘ Stones. It

CHAP. It is very common that those
I. who have had the Gout for many
Years, have Stones grown in the
Joints affected, nay, the Muscles and
Fleshy Parts themselves are not free
from them.

‘ Mr. Denis Pomaret, a Skillful Surgeon of Montpellier, has the following Relation: A Priest Sixty Years of Age, of a Sanguine Complexion, was often times troubled with an Inflammation of his Throat, especially when he strained himself more than ordinary in Singing, which Inflammation was usually cured by Bleeding and Gargling his Throat with Vinegar and Water.

He being taken again whilst I was inspecting his Throat, I saw an Extraneous Matter near the End of the Lower-Jaw-Bone of the Right-Check, like a Mus-
quetc-

quet-Bullet, which with my For-CHAP.
ceps I drew out, and carefully wash-
ing it, found it to be no,
other than a hard and
compact Stone, shap'd
like a Wild-Pear, as here
described; the Tail of it
being fastn'd into the
Muscles, called Mastoides; there
remained a round Mattering Ulcer,
which was cleansed with Honey,
and Wine, and healed.



' Ambrose Parey says, Anno Dom.
' 1558, I opened in John Boucher, a
' Taylor, dwelling in the Street of
' St. Honore, a Watery Abscess in his
' Knee, wherein I found a Stone,
' white, hard, and smooth; of the
' thicknes of an Almond, which
' being taken out, he recovered.

Thus we see that there is hardly
any part of the Body but Stones
have been found in it; Hollerius has
found

CHAP. found them in the Brain ; Nicol.
I. Florentius, under the Tongue ; Aetius
in the Eyelids, and others in other
places, as may be seen in the curi-
ous Observations of the Learned.
Those that are desirous of more
Examples, may read *Ant. Beniven.*
de abdit. morb. Sanat. caus. cap. 42.
Rodericus Castrensis de meteor. Micro-
cosm. Mat. Untzerus Johan. Kentmanus
in his Treatise de calculis : Dodonæus
Observ. Med. cap. 23. Hollerius de
morb. intern. Schol. 29. & 50. Fo-
restus, Sennertus, Fabr. Hildanus.
Julius Cæsar, Scaliger, Langius, Gesner.
Fernelius, Mercurialis, and the Prince
of Physicians, Hippocrates him-
self.

C H A P. II.

CHAP.
II.

Of the Causes of the Stone.

THE Causes of the Stone are two, the Efficient and the Material.

Quæ causa in Macrocosmo gignit in humore lapides, ea & in Microcosmo. Sennertus institut. Med. Lib. 2. Part 2. Cap. 9.

Why should we not believe that Stones grow in our Bodies, as they grow without the Body? We find Stones grow in Bathes, in Fountains, in the Caves of Mountains, and Subterraneous places; where whole Pillars of Stone are found. In the Danish Sea, not far from Lubeck was found a branch of a Tree, in which was a Nest full of Birds, which were all turn'd

C into

CHAP. into Stone, as you may see in
II. *Bernard Cæsius* his Fourth Book,
First Part, First Chapter of Mine-
ralogy.

In *Gothland* is a River which turns into Stone, whatever is thrown into it: Of which Metamorphosis *Frederick* the Emperor had a mind to make tryal; he took a Glove from his own Hand, and put his own Seal to the Glove, and had it thrown into the River, where after it had lain for some Days, that part of the Glove and the sealed place which had been immers'd in the Water, was turned into perfect Stone; the other part which had not touched the Water, was meer Leather, as *Albertus Magnus* tells us, in his First Book of Minerals, Tract. 1. Chap. 7.

We read that in the Year 1320, between *Russia* and *Tartary*, in the Latitude

Latitude of 64 Degrees, a Herd of CATTLE,
Cattle, Horses, Oxen, and Men were turned into Stone : Horrendum
Spectaculum! Of which John Baptista
van Helmont in Tractatu de Lithiasi
cap. 1. speaks thus,

Quod si inde absit miraculum, certe totus ille tractus non nisi petra est continua, rimis pervia, quam silente per multos dies vento depressoq; suprema aura fortis odor sanatilis (qualis in Cuniculis sive fodinis aliquot Spectatur enecans odor) spirasse potuit, suosque inambulones una necuisse nocte; quæ tandem præ loci frigore putredinem inhibente transmutavit creaturas, quas ante pridem Enecuerat.

Lot's Wife was called Statua Salis metallici humanæ figuræ: See Paracelsus. For the Efficient Cause hereof, the Opinions of Physicians differ very much; for some raising Contemplations to superior Objects,

CHAP. derive it from the beginning of our
II. Creation, as a Punishment on Man-
kind for our Apostacy, esteeming
it not strange, that that returns to
Earth or Stone, which from Earth
at first was produced, according to
that saying of the Poet,

Unde genus durum sumus----

We are said to be of Earthy Con-
stitution, and have Bones which
may be compar'd to Stones in hard-
ness and solidity: Such are the
Os-Petrosum, or Stony-Bone in the
Organ of our Hearing, and the
Teeth, to which our most Wise
Creator has given a middle Nature
between that of Bones and Stones.
Another conceiv'd Opinion there
has been, that the Cause of the
Stone was to be attributed to the
immoderate heat of the Kidneys.

For

For they held that those thick, CHAP.
glutinous, Phlegmatic, and Tar- II.
tarous Excretions, which they
call'd the *material Cause* of the
Stone, were by little and little dried
up, and (the thinner and more hu-
mid Parts being consum'd) re-
duced to the Consistence of a Stone,
even as we see Medicamentous
Stones, decocted and made of
Juices of Herbs, and Minerals, by
a gentle Heat and Exhalation.

But the improbability of this
Opinion is evident to all, whom
the Authority of the Ancients has
not wholly prejudic'd.

For daily Experience teaches us,
that old Persons, cold of Consti-
tution, and Women, Phlegmatic
and cold of Temper, as well as o-
thers, are obnoxious to this Ma-
lady.

CHAP. But they add, That if a thick
II. and glutinous Matter may be har-
den'd into a Stony Substance by the
heat of a Furnace, Why may not
also a Viscous Matter be harden'd by
a Preternatural heat into a Stone
in the Body? To which I answer,
Because no Person could be able to
endure so great a heat in the Body
as is that of a Furnace, which
should necessarily be, before such a
Matter could be harden'd into such
a Substance.

And if it were generated by a mo-
derate heat, (as some are of Opinion)
then in Water it would be dis-
solved or dissolvable. As we see Clay,
which, tho' dried with a small
heat, is again resolved, being moist-
ened with Water; and the same
would consequently follow, espe-
cially to the Stone in the Bladder,
which holds good Serum receiv'd
from

from the Kidneys or Reins, and which is afterwards expell'd, being burdensome by its Weight or Acrimony, or both. And if it was caused by a continuing heat, then continual Fevers, Symptomatic, Hectic, and a consuming of the whole Body would follow: We cannot therefore yeild that it proceeds from such a heat; though it is certain, that in this Disease there is a heat Concomitant, yet that precedeth not the Stone, but occasionally is from it deriv'd, as we see a Heat arise from a prick of a Thorn in the Finger, yet the Thorn is not deriv'd from that Heat.

Others assign the Instrumental or Efficient cause of it to Cold, which gathers together the loose Particles of Nitrous Salt; which, they are of Opinion, may as well be per-

C 4 formed

CHAP.
II.

CHAP. formed in the Kidneys and Bladder
II. as in a Urinal.

This seems very Improbable, because the Body is enliven'd by a principle of Heat, deriv'd from the Blood ; so that in reason it cannot be apprehended, that such Coldness, as long as the Body is animated with Life, can be found to give a power of Concretion to the Saline and Earthy parts of Liquors.

Van Helmont, and others, will have it, That the principal and most active Cause of the Generation of the Stone in the Body of Man, is deriv'd from a Petrifying Principle or Lapidific Spirit, that disposes the hard'ning Volatile Earth of the Urine to Petrifaction.

Van Helmont (*says, de la Vanguion*) does not think the Principles of the Urine, alone sufficient for

for the production of the Stone,<sup>CHAP.
II.</sup> but adds a *Petrific Ferment*, which he places in the Kidneys and Urinary Vessels, and reckons that, as a third agent, requir'd to fix and Coagulate the former; there is no Transmutative Principle in Nature, says that Author, without a Ferment: The Intestine motion of the Particles of the Urine is not the immediate cause of its Corruption; its Putrefaction does not arise from any vicious disposition of the Urine; but from a peculiar Corruptive Ferment, residing in the Kidneys and other Vessels.

Dr. Collins in his System of Anatomy, and the Learned Charleton in his Treatise, *de Lithiasi*, stand both up for this *Spiritus, Succus, or humor Petrificans*.

The cause of Petrification, says the former, Cannot be solely attributed

CHAP. tributed to Salt, as having an inward Principle of Concretion, and tho' common Salt made up of minute Particles, may swell by many Accretions into great-lumps, and tho' the Coalition of many small Saline Parts may Constitute hard Bodies, as in *Sal Gem*, *Fossile* and *Marine* Salt; yet these Saline Concretions are different from those of Stones, as being less hard, not so solid, and more friable: So that the Principle of Petrification do's suppose not only Saline, but also Earthy Parts, which last gives Consistence, and the Saline binds the Earthy more close together, which is render'd still more firm, by a Chymous Glutinous Matter; whence the Compages of the Stone become more compact and hard, than that of Salt alone; as is most spicuous

spicuous in Artificial Coagula-^{CHAP.}
tions, made by Coction of Salt-^{II.}
water, and also in a Natural Sa-
line Concretion produced by an
innate Principle in the Bowels of
the Earth ; so that a due pro-
portion of Salt and Earth, is re-
quisite to form a strong Concre-
tion, by reason the Earthy Parts
hinder the Solution of the Sa-
line when they are moistned by
liquid Bodies ; and the Saline
give the bond of mixtion, lest
the Earthy being destitute of Salt,
should constitute a loose body in
the form of Powder ; whereupon
too great a quantity of Salt can-
not turn an inconsiderable part of
Earth into a Stone :

Whence it may be inferred ;
that upon a due proportion of
Earth, being observ'd by Nature,
the greater quantity of Salt makes a
more

CHAP. more solid and firm Concretion.

II.

So that Saline and Earthy Parts being united in a due quantity, and embodied with a Petrifying-Juice, or Spirit, do generate the Stone in the Body of Man.

But in the mean time, they are to consider, that the Lapidific penetrating Spirit, if such a one in the Urine there be, would not so much occasion the Stone in the Bladder, as it would turn the Kidneys and the rest of the Body into Stone, as it do's in the Macrocosm; it shall suffice us now to add, and show the Causes thereof according to our Opinion, which is plain and easily Conspicuous.

Riverius Reformatus Cap. 25. de
Calculo Renum, hæc habet verba:

Rem acu tetigisse mihi videntur, qui
pro generando in Renibus Calculo nihil

aliud

aliud adducunt quam Partes Sanguinis CHAP.
terrestres & tartareae, quæ Viscidioris II.
paulò lymphæ quæ Continuo cum Urina
præterlabitur, & hypostasis audit, glu-
tine conjunctæ, & salibus quibus lotum
onustum est ulterius compactæ, lapidis
naturam induunt & figuram, concur-
rente ad hoc opus renum Compage &
flaccitie, & dilatatione glandularum re-
nalium ductuumq; urinorum.

In the Analysis of the Urine it appears, that it consists of divers parts; For besides that there is in it a plentiful Water, which is the Basis of the Urine, a small part of Choler, which confers that Goldlike, or Citron colour to it, and a Phlegmatic Matter (*lymphæ paulò Viscidior*) swimming for most part on the top, making a ring, and adhering to the Vessel that contains it; There is also a certain Salt and Earthy part mixd with it, proceeding from the

CHAP. the necessary *aliment*, and perceivable from its gust, and what the Urine contains; being naturally in that of all Persons.

This *Earthy part*, therefore, thick and less inclin'd to motion, with which also it is very possible some-what of *Salt* is admix'd, is the material Cause of the Stone.

For if through default of the Chilifying part, it abounds in greater quantity in the Body, than it ought, or be not well mix'd with the Blood, not being well digest-ed or separated in the Stomach, by reason of the great plenitude thereof (with which much Nourish-ment must necessarily abound) it then passes from the Stomach with the *Chyle* into the *Veins*, and is car-ried thence with the Blood through the Ventricles of the Heart into the *Aorta*, or great Artery, thence to

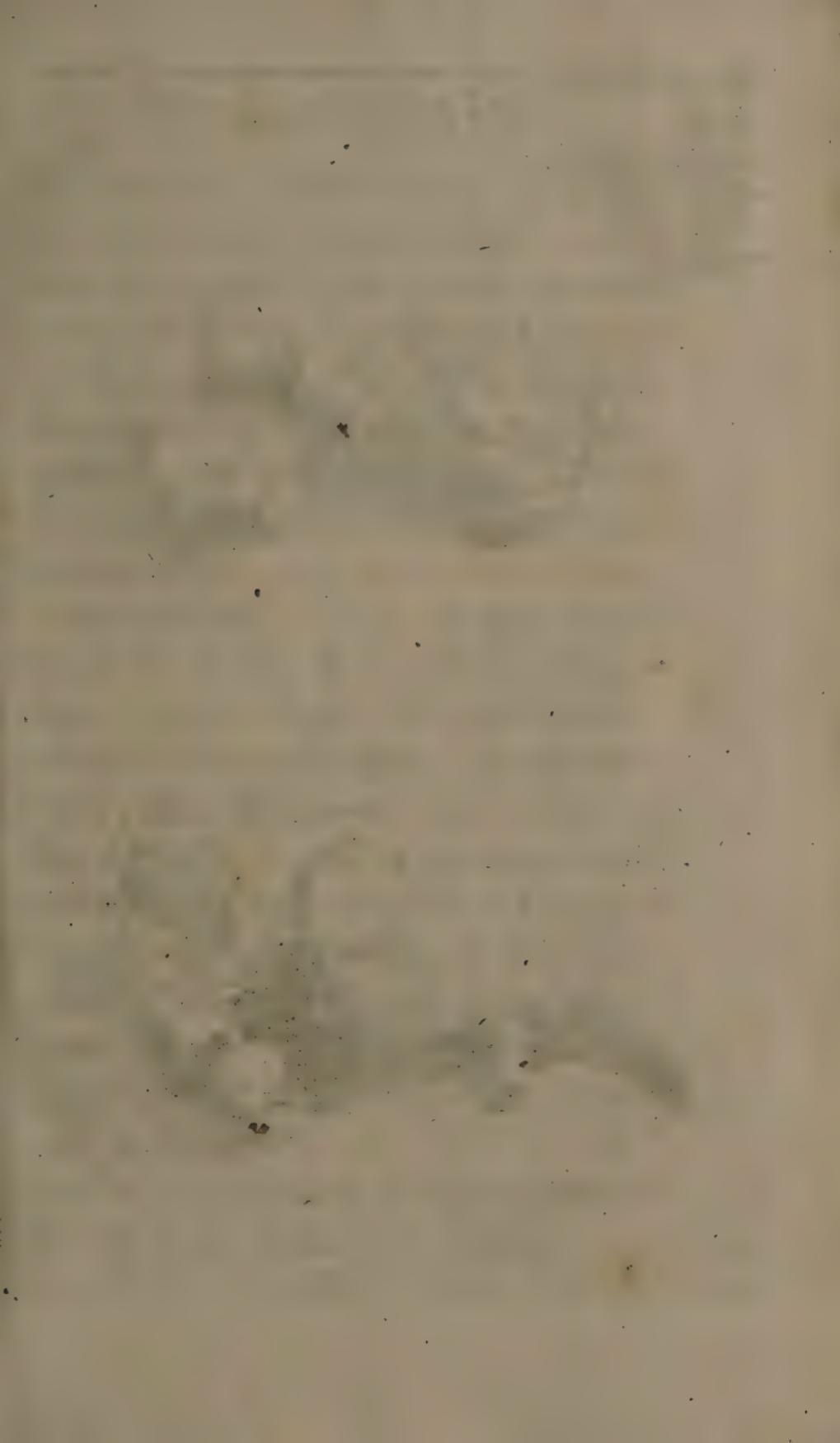
to the *Emulgents*, and in the furthermost branches of those Arteries, or in the Muscles next thereunto, it lodges; and if it can't pass the *Mammillary Caruncles* (which our modern Anatomists call the Strainers) it easily rests in the *Tubules* or Bason of the Kidneys; where sticking fast, it at first becomes a small Particle, which with *Fernelius* we may call the *Kernel*, the *Rudiment* and *Original* of the Stone, which with time proceeding, the like new Matter more and more arriving to it, and feeding it, grows with one Shell upon another, till at length no Gluten intervening, but there being an immediate contact of Small Parts, it becomes a Stone, Coagmented of (as it were) many plates together. Even as we see in the *Bezoar-Stone*, and

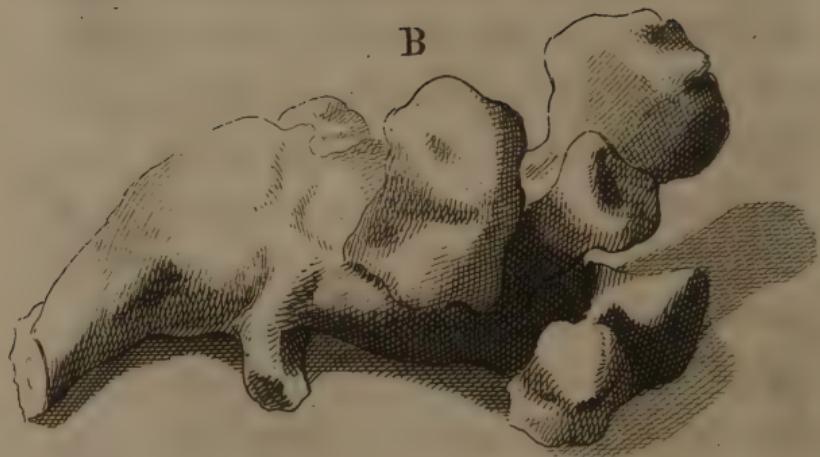
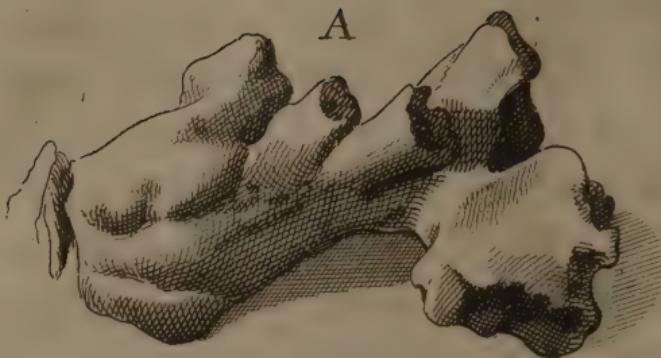
CHAP.
II.

CHAP. and likewise in Onions conflat of
II. divers Coats one upon another.
Thus it grows by little and little,
as our Experience and Occular In-
spection testifies.

How many have I Dissected and
seen Dissected when Dead, who
languish'd to Death by Stones
grown in their Kidneys, and after-
wards taken out ? Of which I shall
mention a few.

One Mr. *Hammon* of *Hackney*,
who died Lethargick, at the House
of Old Mr. *Vander Ancker*, then in
Lime-street; when his Body was o-
pen'd, Stones were found in both
his Kidneys; which were obstructed
by 'em, and occasioned his Death.
There were present Dr. *Edw. Brown*,
our late President, now Deceas'd,
and Dr. *Allen*, then Physician of
Bethlem.





One Mr. *Vander Bergh*, a Flan-
ders Merchant, whose Kidneys were
both stoppt with two great Stones
as big as middle siz'd Balls, had me
call'd in for Advice: I had Sir *Richard*
Blackmore to assist me: After us
came in Dr. *Ratcliff* and Dr. *How*;
but no help could be afforded, the
Patient died.

In April last, 1709. I was sent
for to Visit the Wife of Mr. *Edw.*
Grip, at the Sign of the White-
Swan, in Shoemaker-Row, in Black-
Friers; her Kidneys were wholly
stop'd, each with a prodigious
Stone, which prov'd her Death.
You have here the exact Figures
of the Stones taken from her
when Dead. Dr. *Duglass*, Mr.
Howard, and Mr. *Girl*, Surgeons
were present.

A The Stone found in the Right Kidney.

B The Stone in the Left Kidney.

D The

CHAP. II. The Gravellous and Calculous Constitution of the Reins, which the Learn'd *Fernelius* instances, may in some manner be admitted, if thereby we understand a greater streightness of the Pores, and of those small *Vessels* in the Kidneys, through which the Urine is naturally secernd; and this streightness of the Pores and Passages, is either from our *Embryonism*, or first *Original*, to which especially relates an hereditary Disposition, or else it is acquired in the Revolution of our Age, from those things which we call *Non-natural*.

For it may be very easily credible, that *Matter*, Sedentary, and not apt for Motion, being thick and of a terrene *Indoles*, finding those passages streight, through which it ought to pass, naturally stops and settles. Of this we may take

take a familiar example from the CHAP.
Churn, where the Butter is sepa- II.
rated from the Whey, only by mo-
tion and agitation, and then rests
and settles, because it consists of
Parts which are unapt for mo-
tion.

A separation not unlike it, is also made in new Wine, as the most incomparable *Des Cartes* ingeniously demonstrates: And thus the subsiding **Matter**, growing more and more, by the Specific attraction of Similar Particles, in process of time is form'd into a perfect Stone.

Of the Stone in the Bladder (its generation not differing from the former) there remains no difficulty to be solv'd: Only we may here note, that it do's not always take its Original from the Bladder, but oftentimes also from the Reins.

CHAP. For the Stone growing in the Tuba
II. *bule or Pelvis* of the Kidneys, some-
times also in the very substance
thereof, and falling through the
Ureter into the *duplicature* of the
Bladder, in that *Cavity* it stops,
where the smaller and more Lu-
brick Particles pass by it, but
the thicker and more gross remain :
so that sticking fast to the Tunics
of the Bladder, and not being e-
jected through the *Urethra*, it lays
at large, growing and increasing
with the continual Afflux of new
Matter. *Calculus in Vesica restitans*
crescit per orbes appositos : ita loquitur
Acutiss. Dr. *Hermann.* Boerhaave,
Profess. Med. Pract. in Acad. Luga.
Bat. in suis Aphorism de Cognoscend.
& curand. Morb. p. 365. Thus
the Stone in the Bladder has the
same efficient and material Cause
with that of the Kidneys, and dif-
fers

fers only in the place thereof, and CHAP.
its subject. II.

Yet some seem to admire how the Stone can be form'd in the Bladder, in the midst of the Urine, which they rather think should dissolve it: For which reason perhaps *Fernelius* derives the beginning of all Stones in the Bladder, from the Kidneys; asserting that the Kernels first fall from thence thro' the Ureters into the Bladder, where they grow, &c. but they need not wonder hereat, if they are pleased to consider how Gravellous and also hard Stones grow in the Sea, and in Rivers, though continually wash'd with the Waters: And these are not unlike to those in Mens Bodies; and what serves demonstrably to convince us that Stones are sometimes form'd in the Bladder, and do not always pro-

D 3 proceed

CHAP. II. ced from Kernels first form'd in the Kidneys, is the famous Instance of a Stone taken from a Man's Bladder about five Months past, which was full of Pus or Matter, *in Loco Nuclei*, as several Physicians who saw it can affirm..

If the Reader is desirous to be inform'd, either by Microscope or Anatomy, in the Structure of the Parts we treat of, he may read *Eustachius, Malpighius, Bellinus, Rhuyfch, &c.* who will perfectly inform him in the Niceties thereof. Having said thus much of the first Causes of the Stone, I step over to those which are more remote.

The matter of the Stone is communicated to the Mass of Blood, and very often to the Reins, by Intemperance: To wit, the inordinate use of Victuals, &c. For hereby it very often happens that

that abundance of Humours, con-
curring through so many Vessels,
the Glandules being above measure
fill'd, and the Pores, which
transmit the Chyle, clos'd and ob-
structed, the Concoction of all is
impair'd, and a sink of Corrupt
and Putrifying humours is promo-
ted, from whence comes the Ori-
ginal of Continual *Fevers*, and o-
ther Contumacious Indispositions
in the *Mesentery*; as *Veslingius*, Lib. 1.

Cap. 4. Witnesseth. For hereby not
only a Distemperature of the whole
Body, but there comes also an Evil
Constitution of the Organs to it,
and Matter of the Stone is pro-
duc'd, the Stomach weaken'd, and
its Spirituous Fermentation ex-
tinguish'd, also Belching, Fluctu-
ations in the Stomach, and Flatu-
lencies are excited. Under this
kind of Virtuals, is comprehended

CHAP.
II.

CHAP. Bread not well fermented nor bak'd
II. with a moderate heat, very fine,
and having too much of a clammy
and sweetish quality; and in some
Bodies much use of Cheeſe, which
is difficultly concocted, and enter-
ing not those fine Orifices of the La-
eternal Veins kindly, causes Obstruc-
tions, thickens the Blood, and with its
Terreous Salt generates the Stone.
Herein I prescribe not any Dire-
ctions to Persons strong in Body,
Healthy, and accustom'd thereto,
according to the Axiom in Phy-
sick: *assueta licet deteriora inas-
suetis licet melioribus præferenda sunt* ;
yet hereof a choice and moderation
is to be regarded. Much of the
same nature also is the too constant
use of Beef, Pork, and Goats-flesh,
and Meats very Salt and smoak'd,
which carry much Nitrousness
with them, and are not very easily

con-

concocted. To which may be added the generality of Fish wanting Scales and breeding in the Mud, such as Eels and Lampreys. And a too frequent use of Ducks, Geese, and other Water-fowl, which produce a Superfluous and Excrementitious humidity; also Fruits Earthy of taste, and unripe, are in like manner accessory to its production.

There are also divers sorts of Drinks which breed the Stone in the Reins and in the Bladder: whereof among the first we may reckon new Beer, which has too much Yest in it. Thus *Gesner* relates that Alder boil'd in a Brewer's-Fatt with their Beer, and afterwards laid for some time under Ground, and covered with Gravel, turns to a hard Stone; and therefore thick and standing Water; and that

CHAP. that melted from Ice, or tasting of
II. the Earth it passes through, and
carrying the strength of Minerals
with it; as of Allum, Sulphur,
Iron, and such like, are not to be
us'd as common Drink: The
drinking of cold Water after Sweat-
ing, also is very prejudicial and
breeds the Stone as *Celsus* ob-
serves.

And Tartarous Wines do most
certainly concur to the production
hereof, and Wines sweet, new and
not fine; of which sort are a great
part of the *Moravian*, *Italian*, and
Malaga-Wines, and in some places
Rhenish, with which a Saline Tar-
tar is so intimately united and join'd,
that it is scarcely separable, but with
it passes through the Vessels of Man's
Body, and sometimes sticks to the
Reins and to the Joints, and
breeds the Stone and Gravel;

The

The same may be said of Course CHAP.
Wines abounding with a dreggy II.
Tartar. Yet small Wines do rather
preserve from the Stone than
transmit such impurities to the
Reins and Bladder.

Ova recentia, Vina rubentia pinguia

Vel admodum sanguinosa (jura)

Cum simila pura naturæ sunt valitura.

On this Account Dr. Philip Guide, a French Physician living in Salisbury-Court, a Member of our College, dedicated a Treatise of Red-Wine to the great Boyle (*du Vin Rouge*) which he recommends against the Stone and Gravel: White-Wine is more frequently us'd in *England* by those that are subject to this Distemper: *Consuetudo est altera Natura.*

Besides

CHAP. Besides Meat and Drink, there
II. are other Non-natural things which
promote the Generation of the
Stone.

The *Air*, Thick, Troubled,
Rainy and Cold, thickens the Hu-
mours, procreates Phlegm and
Crudities, it partaking of a certain
Saline and Terreous Consistence.

Immoderate Sleep makes the
Person dull, obtunds the Heat,
and creates Crudities. Too much
Ease and Sloth corrupts the Blood,
nourishes an impure Colluvies of
Humours and exceedingly pro-
motes it. *Obnoxii Calculo podagrici*
& alii quorum Renes, jecur & lumbi
multo in dorsum decubitu calescunt,
& ob intermissum corporis exercitium
& vigilias, coctiones probe perfici non
possunt. *Hildanus.*

Too much motion presently
after Meat, causes a fulness in the
Stomach

Stomach and hinders Conco- CHAP.
ction. II.

And the immoderate and more
then brutish Salaciousness, which
some indulge themselves in, most
certainly promotes the rise and
growth of the Stone, heating and
obstructing the Urinary Parts,
&c.

Such Persons who Travel in
Forreign Climates, or any where in
the Winter, in deep Snow, e-
specially with empty Stomachs,
fall thereby into insatiate App-
petites, and become obnoxious to
Obstructions and to the Stone.

Also the Urine and Excretions
too much retain'd, produces Noxi-
ous Vapours, dulls the heat of the
Body, disposes to the generation
of the Stone, and afterwards har-
dens it. Thus *Riverius* observes,
That the Spanish Nation emit
their

CHAP. their Urine much quicker than others, and therefore are not subject to the Stone as other People.

II. And also the Passions of the Mind, being violent and exorbitant, do much contribute to the Generation of the Stone.

Gaudia pelle, { *Nec dolor adsit,*
Pelle timorem, { *Nubila mens est*
Spemq; fugato { *Vinctaq; frœnis*

Hæc ubi regnant.

For Sadness by degrees impairs the Strength, cools and dries the Body, hinders Digestion, causes sharp Humours and increases them. Anger kindles Fevers, excites Choler, and disturbs the Spirits.

And Fear causes an Acidity in the Humours, diminishes the Strength, and abates the Natural heat. There

There is also an Hereditary dis- CHAP.
position, which conveys the Stone ^{II.} ~~the Stone~~
by Succession and Inheritance, like
the Gout and Consumption ; ac-
cording to the Latin Verses :

*Qui Viret in foliis venit a radicibus
Sic Patrum in natos veniunt cum se-*
(humor,
mine morbi.)

But these do not always ne-
cessarily follow unto those Causes ;
Astrologers add, a Conjunction of
Saturn with Mercury in the Eighth
House, under which (they say)
the Child that is Born, will be
troubled with the Stone.

*Andreas Argolus in Patavina Aca-
demia Matheſeos & Medicinæ Pro-
fessor, &c. loquitur de Calculofis &
Nephriticis hunc in modum:*

Dum

CHAP. *Dum Aegrotus e lecto surgeret per
II. horas 36. Urina Supprimebatur: Luna
erat in quadrato Martis applicato Saturno
Evasit ejectis calculis & viscositatibus,
favente Jove & Mercurio. Alio in loco:
Singula suas causas ex astris habuere:*

I have added this for the Reader's Curiosity, for I confess, as to my self I have little Faith in those things, and of that known Pentameter.

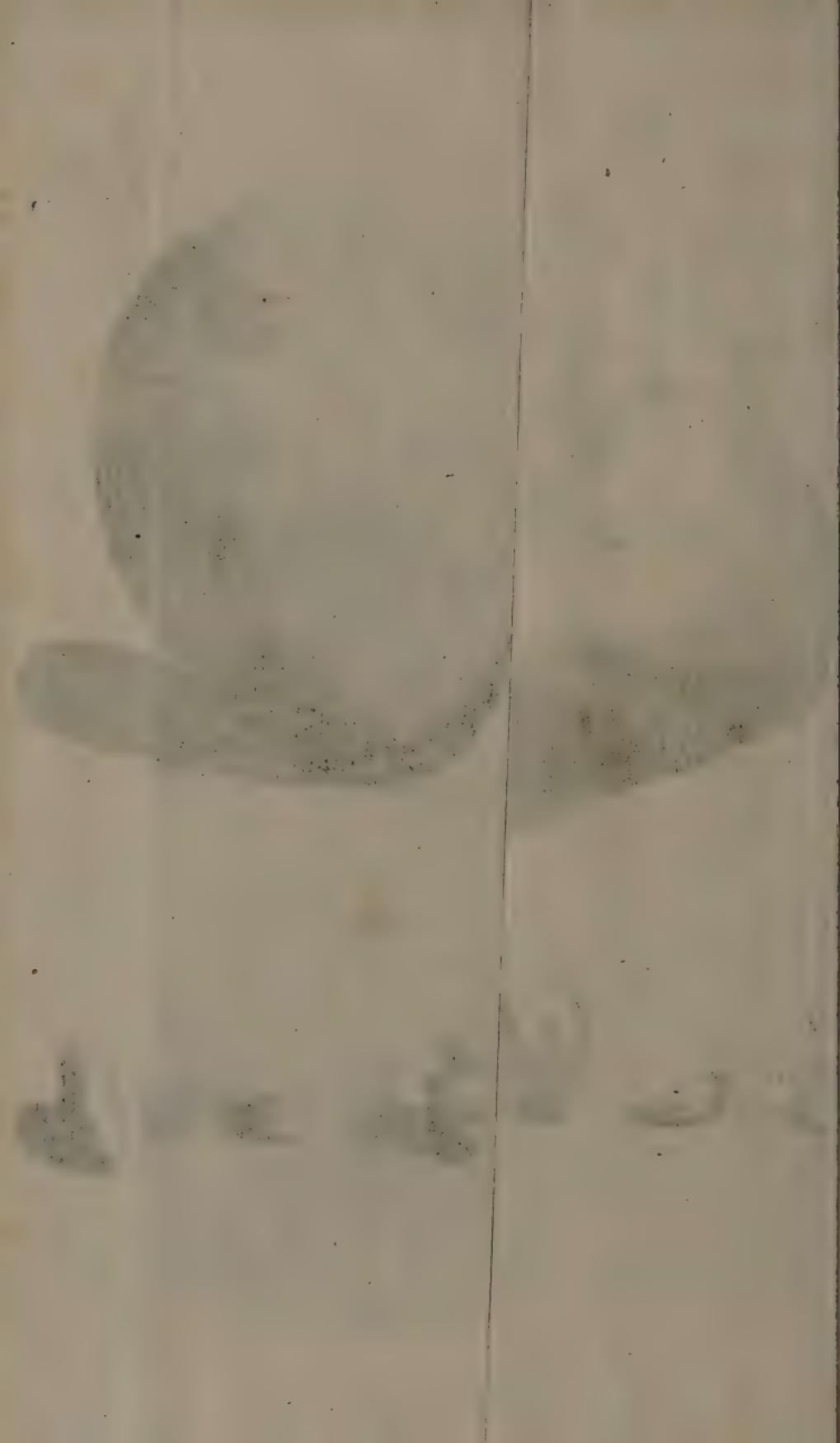
*Astra regunt homines, sed regit Astra
Deus.*

I question the first part as much as I am convinc'd of the latter.

And now it will not be improper to consider the Difference of Stones.

For Magnitude, they are either great or small; which see in the Figures here delineated exactly, as they grew in humane Bodies, both for form and bigness.





Zacutus Lusitanus relates, that an CHAP.
Ingenious and Learned Man, being ^{II.}
troubled Twenty Years with the
Stone in his Bladder, at last had
his Urine totally stopt, and died
in extreme Torture: Upon open-
ing him, there was found in the
Cavity of his Bladder, a very hard
round Stone of a whitish Colour,
that weigh'd 18 Ounces;

I have given (in my Book
written in Latin Anno. 1686;
call'd *Dissertatio Lithologita*) an Ac-
count of one Mr. Lacy, who liv'd in
St. Thomas's in Southwark, and was
my Patient, and whom I refus'd to
Cut when he was alive, well know-
ing that such an Operation as it must
necessarily have been, would certain-
ly prove his Death; for the Stone
when taken from him after he died,
weighed 19 Ounces and an half,

CHAP. I. felt the bulk of it, *digitum mit-*
II. *tendo in anum.*

Dr. Antonius *Vander-Linden*, a famous Physician, had a Stone in his possession, which being very extraordinary, he shew'd to several People; it was taken by himself out of a dead Man's Body, and weigh'd 32 Ounces, being exceeding hard, compact, Triangular, of the colour of Flint, and which with a Steel, would strike Fire like a Flint: This Stone having stopt the Patient's Urine for Eleven Years, at last the retention being total, it kill'd him.

This was the Case of an Eminent Alderman, that upwards of Threescore Years ago, was Lord Mayor of this famous City, Sir *Thomas Adams* by Name: This Gentleman was so abstemious and temperate in Drinking, that for

Forty or Fifty Years, even at publick Feasts, he never exceeded a Pint of French Wine for his share, being always us'd to conclude with a Glass of Canary : In his ordinary way of Living, he drank constantly every Morning a large draught of Small-Beer with Sugar.

For many Years, he felt at certain times, a Pain near the Perineum in making Urine, which he voided but seldom, by drops, and with Acrimony.

Some Hours before he died, he had no desire at all to make Water, and yet suffer'd no manner of Pain, by the distention of his Bladder.

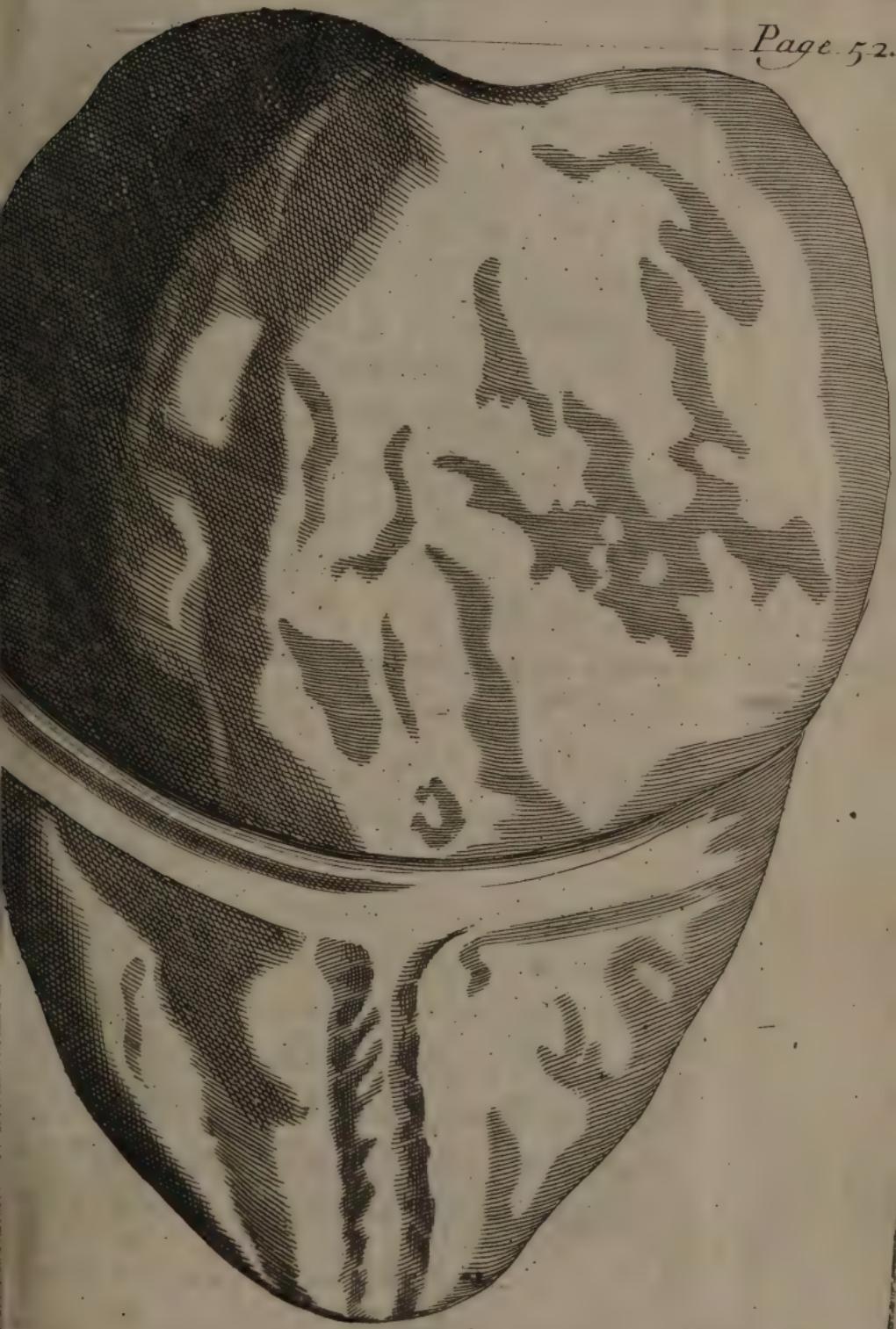
At last he was very much inclin'd to Sleep, no less than if he had taken Medicines for that purpose; and thus within Four and Twenty Hours, died this Grave Senator, of admirable Patience, in

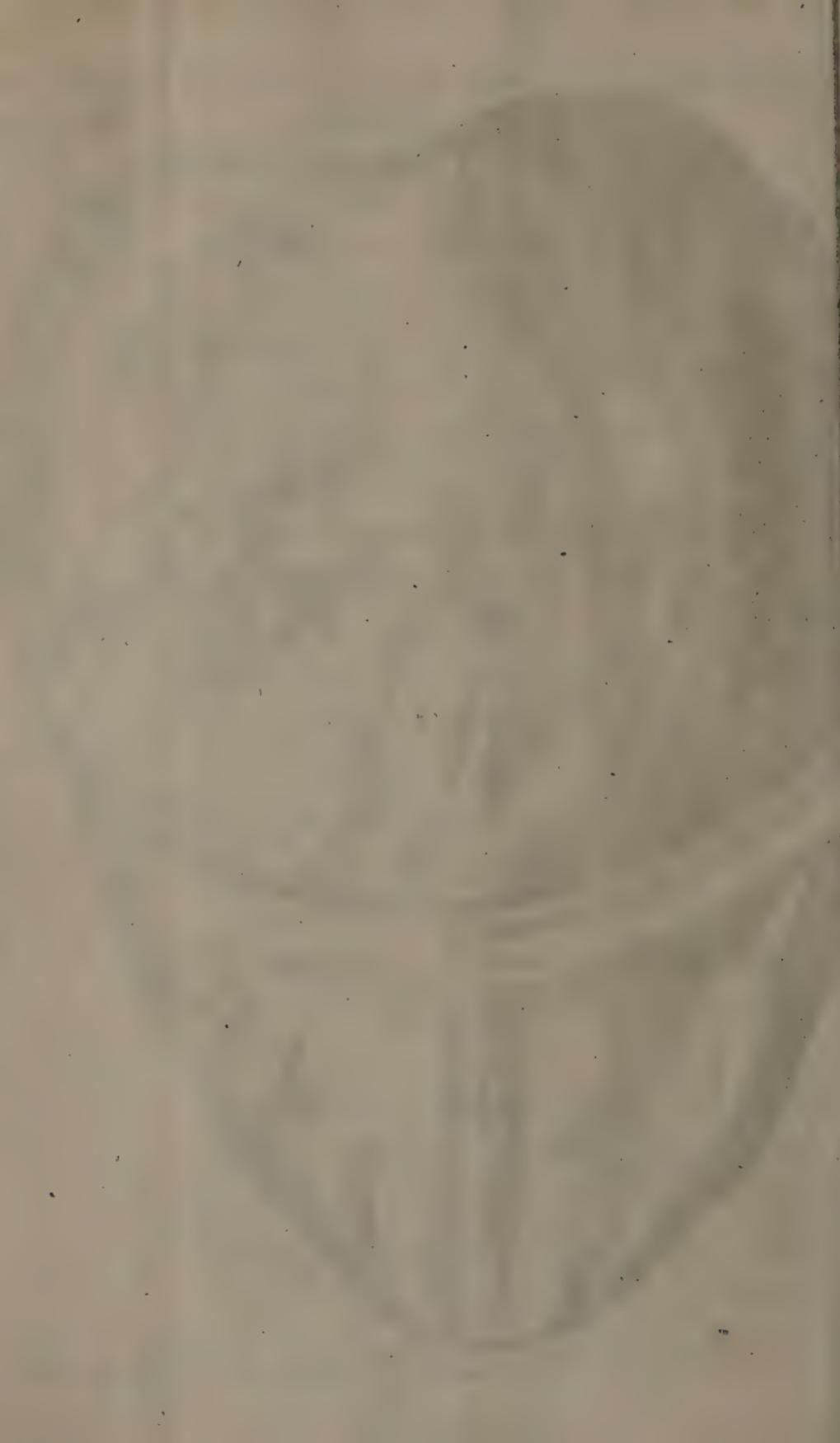
CHAP. the 82d Year of his Age, and the
II. 1667, of the Christian *Æra.*

Being open'd by one Mr. *Hollier*,
a Surgeon, of noted Experience,
no Urine was found in his Blad-
der; but it was fill'd with a Stone
of an unusual and incredible bigness,
resembling the Figure of a Pear,
and weighing 25 Ounces and an
half.

What was most observable in
this Stone, *the Figure of which*
here see, was, that where the Ure-
ters were inserted in the Bladder,
the Urine had made it self a *Gutter*
of a Semicircular form; and from
the middle of *That*, another strait
one, through which it fell into the
Urebra.

The relation of this wonderful
Stone, now kept in the University
of *Oxford*, and the account of the
Patient out of whose Bladder it was
taken,





taken, I had from the Mouth of Sir ^{CHAP.} William Adams, the Alderman's own ^{II.} Son, who formerly, when I Printed my *Latin Treatise of the Stone*, gave me leave to insert it in my Book.

For Colour, some Stones are Red, Yellow, Ash-Colour, Black, &c.

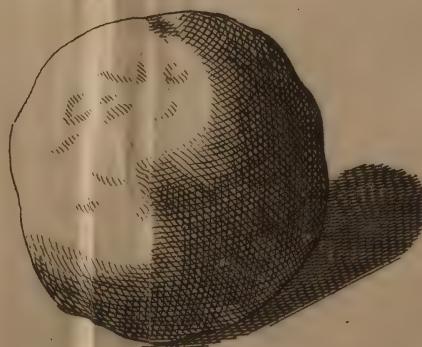
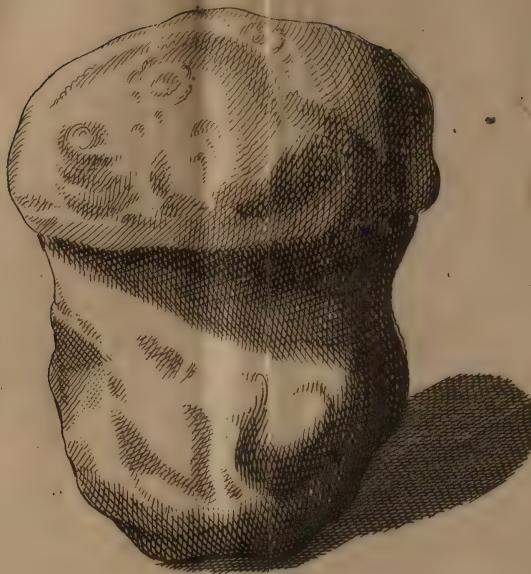
A certain Woman, says *Zacutus Lusitanus*, was for Seven Days together, tormented with a cruel Pain in her Groin; at last by the use of some Medicaments I gave her, she voided a very hard, big, and round Stone, like a Hazel-Nut, of an exceeding black colour, resembling Jet.

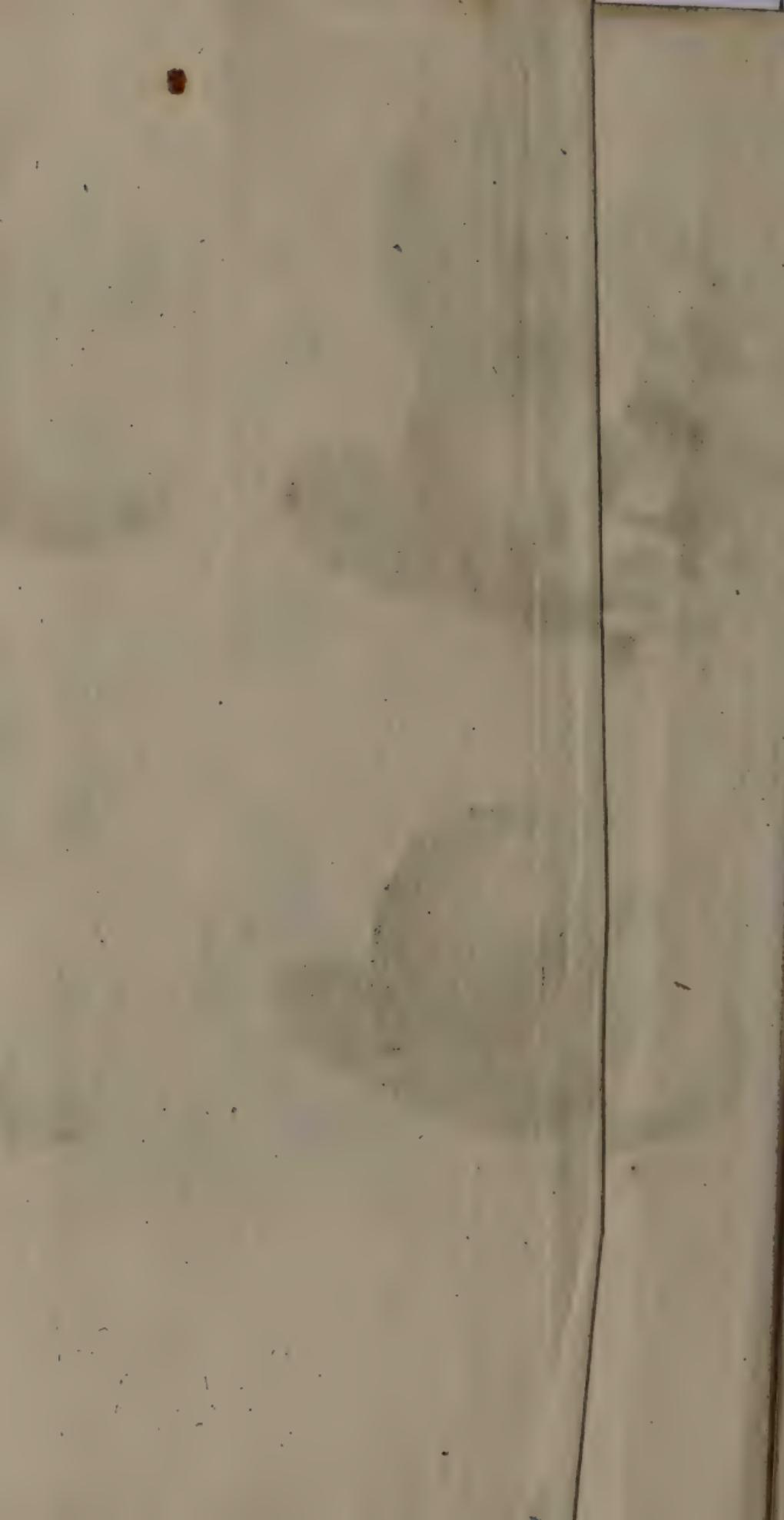
Such a black Stone (but as big as an Hen's Egg) I my self saw, having caus'd it to be taken out of the Dead Body of one Mr. Collins, a Strong-water-Man, or Distiller, in *Wapping*, near *Execution-Dock*, about 25 Years ago, whose Father had been Master

CHAP. of the Honourable Company of
II. Surgeons in *London*.

For *Figure*, they are Round,
Oval, Long, Corner'd, and of o-
ther various Shapes, with their Su-
perficies, Rough or Smooth, as
here shewn.

But of all the Wond'rous Fi-
gures of Stones taken from Hu-
mane Bodies, that ever I heard of,
(before what I my self saw, of which
afterwards) the strangest is that
describ'd by Dr. *Acosta*, a *Portu-*
gal Physician; the Relation is this:
A Boy 15 Years of Age, was long
Sick of a Cruel and most Mis-
erable Torment in his Bladder,
which tho' his Body was otherwise
in a good state of Health, kill'd
him. His dead Body being open'd
there was found in his Bladder, a
round Stone, as big as a small
Hand-ball, arm'd on all sides with
polish'd





polish'd and sharp Pyramids, like what is Painted for the Sun, and the humour by the baking heat of the Body, was so dispos'd and hard'ned, that between Pyramid and Pyramid, long Spears like Needles, were by Nature inserted, as the Figure, which is exactly shewn in his Book, do's manifest. But as I hinted above; I saw almost such alike surprising and much bigger Stone, which in the Year 1688, was taken out of the Dead Body of Mr. Samuel Leak, a Fishmonger, who kept his Shop in Swithin's Alley, against the Kings-Head-Tavern near the Royal-Exchange, London; he was Forty Years of Age when he died, sometime before which, his Countenance was Wild, his Eyes fix'd, and his Misery so excessive and intollerable, that it mov'd every one that came near him

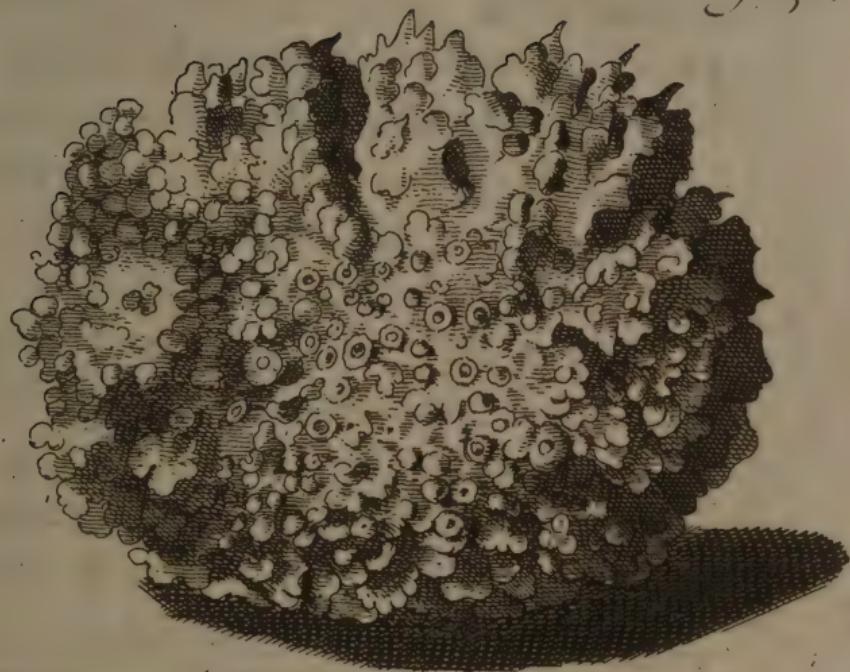
CHAP.
II.

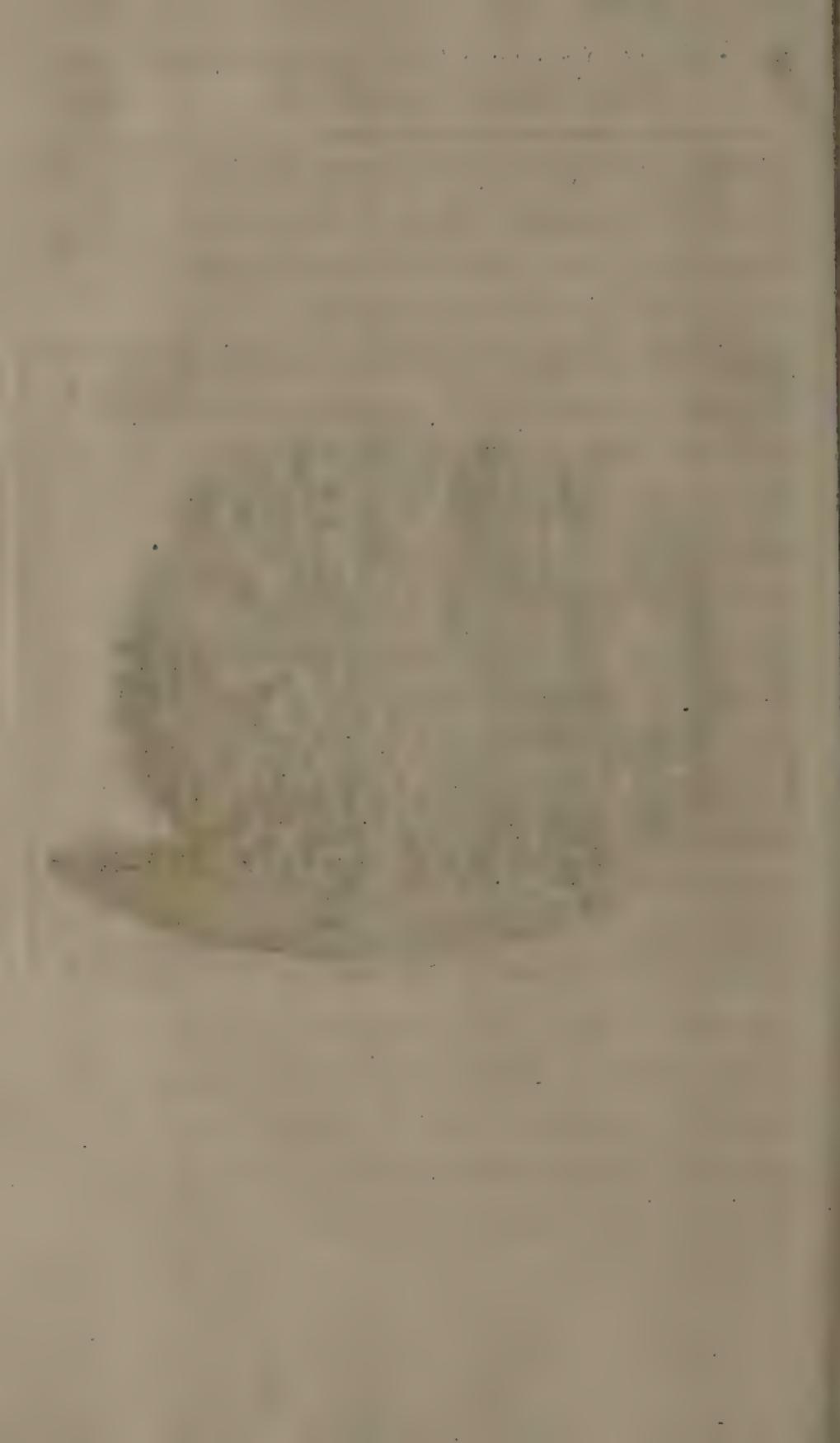
CHAP. with the greatest Compassion. Any
II. Person may easily imagin, by the
bigness of the Stone, and its rough
and sharp pointed Superficies, un-
der what dreadful Misery, the poor
Patient languish'd when alive ;
the Stone it self, may now be seen
at Mr. Kelton's, a Barber, against
the Salutation-Tavern, in *Exchange-*
Alley, who willingly admitted me to
have the exact Figure, for size and
form delineated, which here see.

For weight, some Stones are light,
some heavy ; those that are full of
humidity are light, those which are
closely compacted and hard, are
heavy.

If Stones be form'd in the Kid-
neys, and take their growth there,
they will be form'd according to
the shape of the Cavities, where
into their Branches naturally extend
themselves ; as you may see by
the

Page 56.





the Figures of the two Stones taken from Mrs Gripp: Page 33 afore-going.

CHAP.
II.

Hence it follows, that a Stone form'd and augmented in the Neck of the Bladder, will have a Figure Oblong, or like a Pear; having one End smaller than the other.

We must not forget the Number; sometimes there is but One, other times more; about Nine Years ago, I took Four Stones as big as Pidgeons Eggs, from Mr. March, a Barber, aged 67 Years, who is now living at an Apothecary's in Cecil-street, in the Strand, and very well.

Some Years since (which was very extraordinary indeed) I extracted 42 Stones from the Bladder of one Mr Whitaker, who was then about 60 Years of Age; which Stones fill'd

CHAP. fill'd a Quart-Pot. The Worthy
II. Dr. Richard Lower deceas'd, was
present at the Operation.

If in Lithotomy we find a smooth and flattish Stone, we must judge in the Operation, that there is another or more behind.

The smoothest Stones are not extracted without some Pain, and sometimes are not rightly laid hold of by the Forceps.

There are other differences of the Stone, according to its degrees, wherein it is either *Sand*, which takes its beginning in the Pores of the Kidneys, and differs from the Stone only in its magnitude; or else it is *Gravel*, which with mucous Matter intermix'd with the Sand, is therewith Coagulated,

Arenulæ mutuo adhæsu inter se colligate, calculum coagulant atq; Componunt. Fernelius.

CHAP.

II.

And these are the Rudiments and Original of the Stone.

There are also Stones that are Tophous, which have the Figure indeed of Stones, but are frangible or brittle, and suddenly Break or Crumble to small pieces.

And there are Stones exceeding hard, solid, and not easily broken.

Some Stones grow about Extraneous Matter they find in the Body, of which we have several Examples.

John Matthæus relates, that a small Nail was swallow'd by one at unawares, and was a long time after, taken out of the Bladder, with a Stone Cut out at the same time ; the Stone cleaving round about the Nail, as if the latter had been

CHAP. been the Ground-work of the
II. former.

Like unto this, is the Wonderful relation which *Ambrose Parey* gives, *Lib. 25. Cap. XIX.* In the Year 1566. says he, the two Sons of *Laurence Collot*, Men Excellent in Cutting for the Stone, took from a Man, a Stone of the bigness of a Wallnut, in the midst of which was a Needle, just like those that Shoe-makers use: The Patient's Name was *Peter Cocquin*, dwelling in the Street *Galand*, at the place call'd *Maubert* at *Paris*, and I think (says *Parey*) he is yet living; the Stone was shew'd to King *Charles the Ninth of France*, for the Monstrousness of the thing, I being then present; which, being given me by the Surgeon, I preserve among other Rarities.

And

And to my own knowledge, in the CHAP.
Year 1691. Mr. English, an In- II.
genious Surgeon, (then living
on *London-Bridge*, but since dead) in
the presence of Dr. Hobbs, took a-
way a Stone from one *Mary Tovey*,
a Virgin about 26 Years of Age,
who some Years before, with her
Bodkin, us'd to ease her self of an
Itching Pain, which she had in
making Urine, by putting up the
Bodkin in *Meatus urinario*, but at last
let it pass so far, that it slipt into
the Cavity of her Bladder, where
it lodged for about two Years, and
was drawn from her, with a Stone
as big as a large Wallnut grown
about it, one part of the Bodkin
stuck out at the top, and the other
at the bottom of the Stone, which
was of an Oval Figure, as here
delineated. I my self saw the
Stone,

CHAP. Stone, the extracting of which
III. kill'd her.

~ ~ ~

A, *The Eye of the Bodkin.*

B, *The Stone.*

C, *The Crooked part of the Bodkin,
which was bent by the Forceps in Extracting the Stone.*

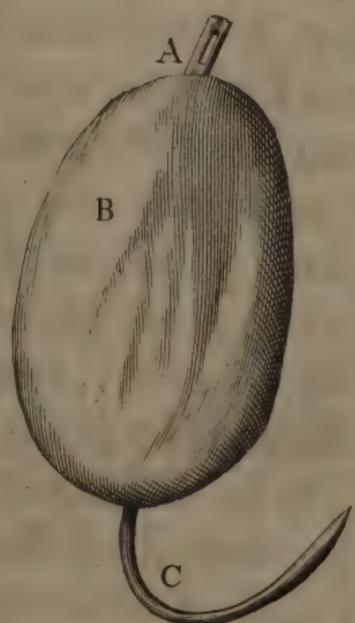
CHAP. III.

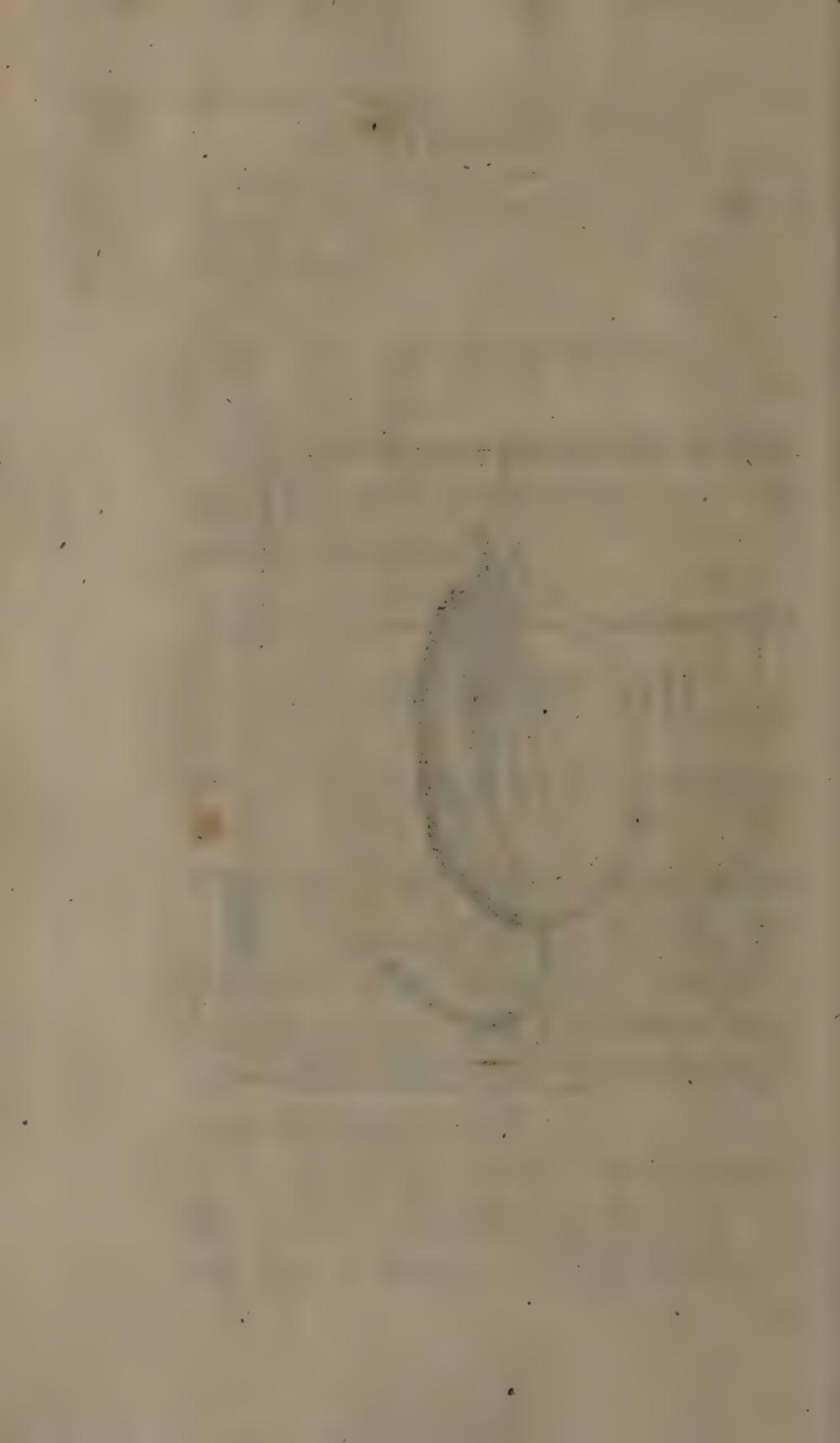
Of the Diagnostick Signs of the Stone.

TH E Pathological Signs of the Stone in the Kidneys, tho' properly there be none, but what are Equivocal and Common with other Diseases, yet for the most part do indicate it.

1. A fix'd Pain in the region of the Loins, continuing, heavy, lying like a weight in the substance of

Page 62.





of the Kidneys, and with a dull kind of Sense; but when it is in the head of the *Ureter*, it is sharp, tearing, and of all Pain most tormenting.

CHAP.
III.

2. A difficulty of bending the Back, the Nerves thereof being stretched and press'd together.

3. A heat in the Loins.

4. A Stupefaction in the Thigh and Leg, on the same side; the Muscle *Psoa* being much press'd by the weight of a great Stone, or that *Nerve*, which is branched through all the *Crural Muscles*.

5. A retraction of the *Testicle* on the side affected, through the drawing up of those Vessels, (which are divaricated to the Testicles from the Reins) with the Stomach; which is occasioned not so much through means of the *Peritonæum*, whose Membrane each participates of;

CHAP. of ; as by reason of that common
III. Nerve inserted into the proper and
internal Tunicle, from the Stomachic
branch of the Sixth pair.

6. The Urine is many times Bloody, which is occasion'd especially by a sharp Stone, that either erodes the Parts, or tears and opens the small Veins, which are spread through the substance of the Kidneys.

And it is to be observ'd that sometimes in the beginning of the Disease, the Urine is thin and limpid like Common-water, and but very little in quantity, because the Kidneys are obstructed and partly stopt up with Stones. But when they are passed through the Ureters into the Bladder, the Urine is render'd thick, turbid and mostly plentiful.

CHAP.

III.

*Calculus e renis substantia exturba-
tur in cavum, quumq; Evellitur, renis
Partem cui adhaerescebat, sine doloris
sensu divellens & quasi dilacerans, sa-
niem prolicet, que pariter cum Urina
profunditur, eamq; crassam, turbidam,
subnigratq; reddit. Fernel. Pathol.
lib. vi. cap. xii.*

What *Hippocrates* rightly observes, that the similitude of Diseases, often imposes on good Physicians, and creates Errors and difficulties, is no where more true, than in Nephritic and Cholic Pains; for not only audacious Emperics, but the most rational Physicians have often mistaken the one for the other.

Galen, who was so wonderfully vers'd in the Diagnostic signs of Diseases, has err'd in this point, as

F. he

CHAP. he Ingenuously confesses himself,
III. in 2. de loc. affect. cap. 5. wherefore
I shall here set down, the principal
signs, by which they may be distin-
guish'd.

If the pain be above the *Reins*,
it proceeds from the *Gutts*, not from
the *Reins*.

If it be from the *Reins*, it tends
outward, but removes not from the
same place, only when the *Stone*
falls from its first Station into the
Ureter.

But the *Cholic* Pain wanders,
changes its place, and takes its pro-
gress through the whole circuit of
the *Guts*.

Tho' in the *Stone*, there is a Vo-
miting and *Nausea*, as well as in
the *Cholic*, yet it is seldom so vio-
lent in the first, as it is in the
latter.

Nausea

Nausea inquit Galenus & vomitus
(urgent)

Multo graviores & magis assidue
(dolente Colo.)

The Nephritic Pains, are likewise distinguish'd from those of the Cholie, by the Red-Sand and Gravel that is commonly voided with the Urine of the first; tho' Avicenna is of Opinion, that the Gravelly-Sand in the Urine is so far from being a sign of the Stone in the Kidneys, that it keeps 'em more free from it, because it is a sign, that those Kidneys have the strength to expel what is retain'd in others, that are weaker, and might soon turn to a Stone: But I am of the Learn'd Charleton's Opinion, and considering how soon the least thing, that remains near the Kidneys, may turn

CHAP. to a Stone, I would rather Piss
III. clear, than seeing my Urine full of
Sand, be always beholden to the
strength of the *Facultas Expultrix*.

Another sign peculiar to the
Stone, is bloody Urine, which is
never seen in the *Colic*.

In the *Stone* of the Kidneys, there
is also most commonly, an obtuse
Pain, as if some weight lay near
the place affected, hind'ring the
Spine of the Back, from bending
backward or forward, without
much uneasiness.

Those who are troubled with
the *Stone* or *Gravel*, are better after
their Meals; but with the *Colic* worse.

What an absolute necessity there-
fore is there, for a Physician to be well
skill'd in these distinctions? as you
may also see, by what that great
Man Dr. Charleton says, in his
Book *Diatrib de Lithias.* Sect. 2.

where

where speaking of these two Di-^{CHAP.}
stempers, says he, *Et licet in primo* ^{III.}
paroxismi insultu, ubi dolori supra
modum saevienti potissimum obvertenda
est Medicina, Colicam inter & nephri-
tim satis conveniat de auxilio; ita ut
quæ huic prodeesse, illi etiam opitulari
quæant præsidia: tamen temporis pro-
gressu, & invalesceente morbo Contrarie
& e diametro pugnaces emergunt in-
dicationes, remediaq; postulantur plane
diversa, & facultatibus adeo odiosa dis-
sentia, ut qui antinephriticis colicam,
aut e contra nephritim anticolicis expug-
nare tentaverit, inscienter excusationis
Parum, quo ab homicidii reatu Vindi-
cetur, nisi stolidam suam Ignorantiam,
babuerit sibi relictum.

The Sense of which may be
shortly render'd thus:

That if a Physician, in the be-
ginning of a Paroxysm, should hap-

CHAP. pen to mistake, and give his Patient an *Anticolic* instead of an *Antinephritic* Medicine, or *e contra*, he may possibly do no hurt; but if he goes on in his mistake, and the Disease at the same time increases, the indications are so clashing together, and the Remedies requir'd, of such very different Qualities, that he who foolishly attempts, to overcome the Stone with *Anticolics*, or the *Colic* with *Antinephritics*, has besides his stupid Ignorance, but little left to absolve him from Manslaughter.

C H A P. IV.

Of the Diagnostic Signs of the Stone
in the Bladder.

THE Prince of Physicians,
Hippocrates Lib. iv. de morb.
computes the Signs of the Stone
in the Bladder, very compendiously
in this manner.

In making their Urine, it Pains,
and comes by little and little, as in
the Strangury; is somewhat Bloody,
as if the Bladder were ulcerated,
and the Bladder is hot and inflam'd,
the upper part of the *Preputium*
plainly shewing it: It is also a
sign of the Stone (some of the
other signs being also present) when
Sand is voided, tho' not always,
for

C_HAP.

IV.

*Arenas multi mingunt, neq; Calcu-
losi sunt. Quoniam illæ non Coguntur
in lapidem, nisi viscido aliquo & crudo
humore superveniente, ad quod itidem
& tempore opus est.*

Hollerius.

And Hippocr. says, That Children rub and pull the Parts wherein they are pain'd.

To these signs, we may add the stretching of the *Virile Part.*

And a Sense of an heaviness in the *Perineum* and the whole *region* of the Groin, especially when the Stone is large.

Also a continual desire of making Urine, which when done, there ensues a violent Pain, chiefly in the *Glans*: Occasion'd for the most part from the Stone, falling into the *Urethra,*

Urethra, and moving with the Water excreted.

CHAP.
IV.

There is also an endeavour sometimes, of both *Egestions* at once, and very frequently a *Prolapsus Ani*, which proceeds from the consent of both *Sphincters*, and the Community and Colligation of the *Nerves*, which they both receive from one branch.

But it is known certainly, by manual Examination, with the Finger or Catheter, whether there be a Stone or not, and whether more than One, also whether large or small.

Whether it be hard or soft, is not easily known, if we could come to a certainty in that, it would be of great moment, for tho' it be seldom, yet it is sometimes found, that the Stone in *Lithotomy* presents hard, and in extracting

CHAP. tracting of it, breaks to pieces ;
IV. (the *Meditullium* of the Stone being
soft, and the *Cortex* round about
it, hard) but more of that in ano-
ther place, where we shall treat
of the act of *Lithotomy* it self.

Hitherto also relates the know-
ledge of the Causes *Antecedent*, of
the *Temperament* and *Constitution* of
the Patients, of the *Diet* which
they have us'd, and the *Symptoms*
which they have undergone.

For the Pain must needs be
grievous, if the Stone is large,
hard and rough.

The Patient that has a Stone
stopping the Passage of Urine, will
cross his Leggs, and hastily and
with violence turn himself, or sit
on the Edge of his Seat, rubbing
and pulling the *Virga*, to change
the Situation of the Stone, and to
facilitate the Excretion of Urine,
by

by which signs, we first suppose, CHAP.
IV. Young Children to be afflicted with the Stone, which induces us to search them, to be ascertain'd of it.

I never found a Stone skinn'd over with a peculiar Membrane, but what was form'd between the Duplicature of the Membranes of the Bladder, part of it hanging in the Cavity of the Bladder, as an Acorn hangs in its Cup.

There may be an Excrecence of Flesh, in the Bladder, as one of the Worshipful Sheriffs of London had in my time, and died of it, as was found when he was open'd.

And sometimes we find a Fungus, which is not easily discern'd from a Stone by the Symptoms, because they are so much alike: But the Stone is much more frequent there, and an Ingenious Man can't be

CHAP. be well mistaken, provided he be
V. attentive in sounding and search-
ing; These are the *Diagnostic* signs
of the Stone in the Bladder, to the
Prognostics, we now proceed.

C H A P. V.

Of the Prognostic Signs of the Stone.

THAT Children are more obnoxious to the Stone in the Bladder, and ancient People to That of the Kidneys, is the Prognostic of *Hippocrates*; and also that Diseases of the Reins, and of the Bladder are more difficult to Cure in Ancient Persons, than in Young ones.

Et in Infantibus inordinatus victus
crassos crudos & indigestos humores Cu-
mulat, & phlegma quod cum Urina
ad Vesicam deducitur, præcipue cum
parum exercentur, & meatus habent U-
rinarios augustos, & debilem facultatem
expultricem.

An Hereditary disposition to the Stone, descending from the Parent to the Child, oft Scorns and Eludes even the best means of *Physic*, administered for its Cure or Prevention:

In the Year 1691. May the 20th, I took away, by Cutting, a Stone from the Son of Mr. S----y in Barnaby-street; And on the 14th of June following, I drew a Stone from his Wife, which is now 18 Years ago, the Son and Mother are both alive at this very time.

But

CHAP. V. But (*ad rem*) in respect of Medicines, the Stone in the Bladder is harder to be Cur'd, than That in the Reins, but by Lithotomy it is easier effected.

Those who are commonly Laxative or Loose in their Bodies, are seldom troubled with the Stone in the Kidneys.

The Stone in the Kidneys, and with it an Ulcer, is desperate: Yet in this deplorable Exigence, Nature sometimes to admiration has wrought a Cure, for the Pains tending outward, to the Spinal Muscles, and an Impostumation arising, Stones have been cast forth, and the Ulcer consolidated.

Delechampius relates, that he saw a Man, who by an Abscess of the Loins, that turn'd to a Fistula, voided many Stones out of his Kidneys, and yet notwithstanding could

could endure to Ride, both in a ^{CHAP.} Coach and on Horseback. ^{V.}

I had once a Case, where an Ulcerated Matter had made a Pappy Collection in the Back of a Woman, who came from *Ipswich*, which was open'd with good success, cleans'd and heal'd; she is still alive, tho' the Cure was done by me 20 Years ago; but she has had never a Child since, and I impute the Cause to that Illness.

The Stone is a Disease, violent and dangerous, attended with Inflammations, Ulcers, dreadful Pains, Restlessness, Obstructions of Urine, Fevers, and other lamentable Symptoms.

But if the Stone be large and hard, there follows a necessity, that the Person (to be freed from continual Languishing Misery, worse than Death it self) submit

to

CHAP. to Chirurgical Operation, though
V. there is also danger in it.

Lapis vesicæ a sola Manuali Ope-
(ratione)
Sanatur. Galen. Com v.vi. Epidem.

If the Stone be not very large (which may perfectly and easily be known) the Patient under no ill habit of Body, nor an hereditary disposition to the Stone, we may then reasonably make a good *Prognostic*, but an Evil one, if there be the contrary.

If the Stone be very great, as was That, weighing 19 Ounces and an half: That, of Sir Thomas Adams, of 25 and an half: And That of 32 Ounces; (which I mention'd before) such, are to be esteem'd desperate Cases, and *Lithotomy* is not (according to *Corn. Celsus*) to be undertaken. Yet

Yet some large Stones have been taken from Patients with success; witness That which Parey makes mention of in his Book of Monsters: In the Year 1570, says he, the Dutches of Ferrara at Paris sent for John Collot, to take a Stone out of a Confectioner. This Stone, tho' it weigh'd Nine Ounces, and was as big as one's Fist, yet it was happily taken out, the Patient recovering; Francis Rousset, and Joseph Javelle, the Dutches's Physicians being present; yet not long after, this Confectioner died by the stoppage of his Water, by reason of two other little Stones, which in the descending from the Kidneys to the Bladder, stop'd in the middle of the Ureters, and caus'd his Death.

And when a Stone grows to the Membrane of the Bladder, inclos'd

in

CHAP. in another Vesicle or Bladder, or
V. without it; the Person is in the
same predicament, as also infirm
Persons, and weak Children.

*In nobilli quodam, cui vivo calculus
deprehendi non potuit, post obitum Cal-
culi Ingentes, sacculo vesicæ adnato in-
clusi reparti sunt, qui si extracti fuissent,
exinde misere occubisset.*

Hildan. cap. 8. Bauhin. Theatr. A-
natom. cap. 31.

But if the Person be of Strength
and of good Constitution of Body,
and the Stone be not excessive large,
tho' there be more of them,
(the Divine assistance implor'd) the
Operation may with good courage
be undertaken, and with good
hopes of success accomplish'd.

In the Female Sex, the *Opera-* C H A P.
VI.
tion may much more securely and
easily be perform'd.

C H A P. VI.

Of what is to be observ'd by the *Lithotomist* before the Operation.

Hippocrates (though he himself never Cut for the Stone) has instructed us, how necessary it is to observe all circumspection in performing it well; wherefore when a *Lithotomist* pretends to cutting for the Stone, he ought to be as followeth:

*Sis doctus, diligens, hilaris, gravis,
Introitus tuus, figura, vestitus, ton-*
(sura,

His Patient is his subject matter, he must take care to foresee the Consequences, that he may guard himself with necessary Remedies, Instruments and Assistants.

It is one of his chiefeſt qualities to have great ſkill in *Anatomy*, that he may know the Structure and Situation of Parts, that ſo he may Operate with necessary Circumſpection, being bold but yet not rafh. See *Veslingius's* Preamble to his *Anatomy*. He ought to let his Prudence appear by making his *Prognostic*, diſtinguiſhing between Things and Things, as I have pa- ticularly mention'd in the preceed- ing Chapter.

Wherby according to the Rule of his Art, he may ſucceed.

He is to consider the State,
Strength and Age of his Patient.

CHAP.
VI.

He ought to be inform'd from the Patient's own Mouth, and by those that wait on him, of the secret Matters and Distempers to which he is subject, of the excesses that may have contributed to his Indisposition ; nothing is to be conceal'd from him, because of the Remedies and Instruments which he is to chuse.

It is a good presage for the Cure, if after the Operation is perform'd, the Patient Sleep, if his Respiration is equal, his Tongue Moist, and he neither Vomits or is Drouthy ; the lower Region of the Belly little, or not at all swell'd, and there is only a moderate heat and a slight Feaver ; because in that Indisposition the Inflammation

G 3 ceases

CHAP. ceases most commonly about the
VI. Fifth or Seventh Day.

He ought to know that the Patient oftner Dies by Accidents that accompany or follow the *Operation* than by the Stone, whilst it is in the Bladder, tho' the Torture many endure with it, is ten times more grievous than *Cutting*, or even Death it self.

If the Patient be too weak, he ought to have time to gather Strength; The *Operation* will always bring danger, and the *Lithotomist* ought to give notice of it, that he may avoid blame.

Two Hours should be allow'd before the *Operation*, for Digestion of the Food that the Patient has taken: That Morning, I commonly allow a good Glass of Claret and Sugar with a Toast, that

the

the Patient's Body may be in a better condition to endure the *Operation.*

CHAP.
VI.

Cornelius Celsus observes that most Learn'd Men have weak Stomachs and are not Strong, by reason of watchings and over-studying.

Pharmacy or Medicine (of which I shall treat more at large, after I have done with the *Chirurgical* part) cannot cure a Person afflicted with a large, hard, concreted Stone; it can only bring relief when Stones are small, either in Kidneys or Bladder, and of a loose Cohesion, which then may easily be resolv'd and Evacuated by Urine.

Further, the *Lithotomist* must enquire how long the Patient has been griev'd, he must consider the Season of the Year, the Place and other Circumstances according to the Principles of *Physic* and *Chirurgery.*

CHAP. VI. If the Patient has the Jaundice or
Dropsie, or both ; or an Ulcer in either
Kidney or Bladder, or be Asthma-
tic, Gouty, or has a Stone adhering to
the Bladder (which is but seldom,
and then not always discernable) or
has a Fungus, or Sarcoma; with such
he must not meddle, otherwise than
to palliate the Case as much
as he can, but not make use of
Lithotomy; that is, he must not
Cut such a Patient, for he will
have no credit by so doing in the
end.

Children are more soon and ea-
sier cur'd by this *Operation*, than
those that are stricken in Years,
their Mind being sedate, not know-
ing or reflecting on the Danger of
Death.

Whilst all things are preparing,
it is the *Lithotomist's* part to com-
fort the Patient: 'The only and
true

true comfort in trouble is that CHAP.
which Religion supplies us with,
wherefore let the Patient pour out
his request to the Divine Being
for Relief and Deliverance, &c.

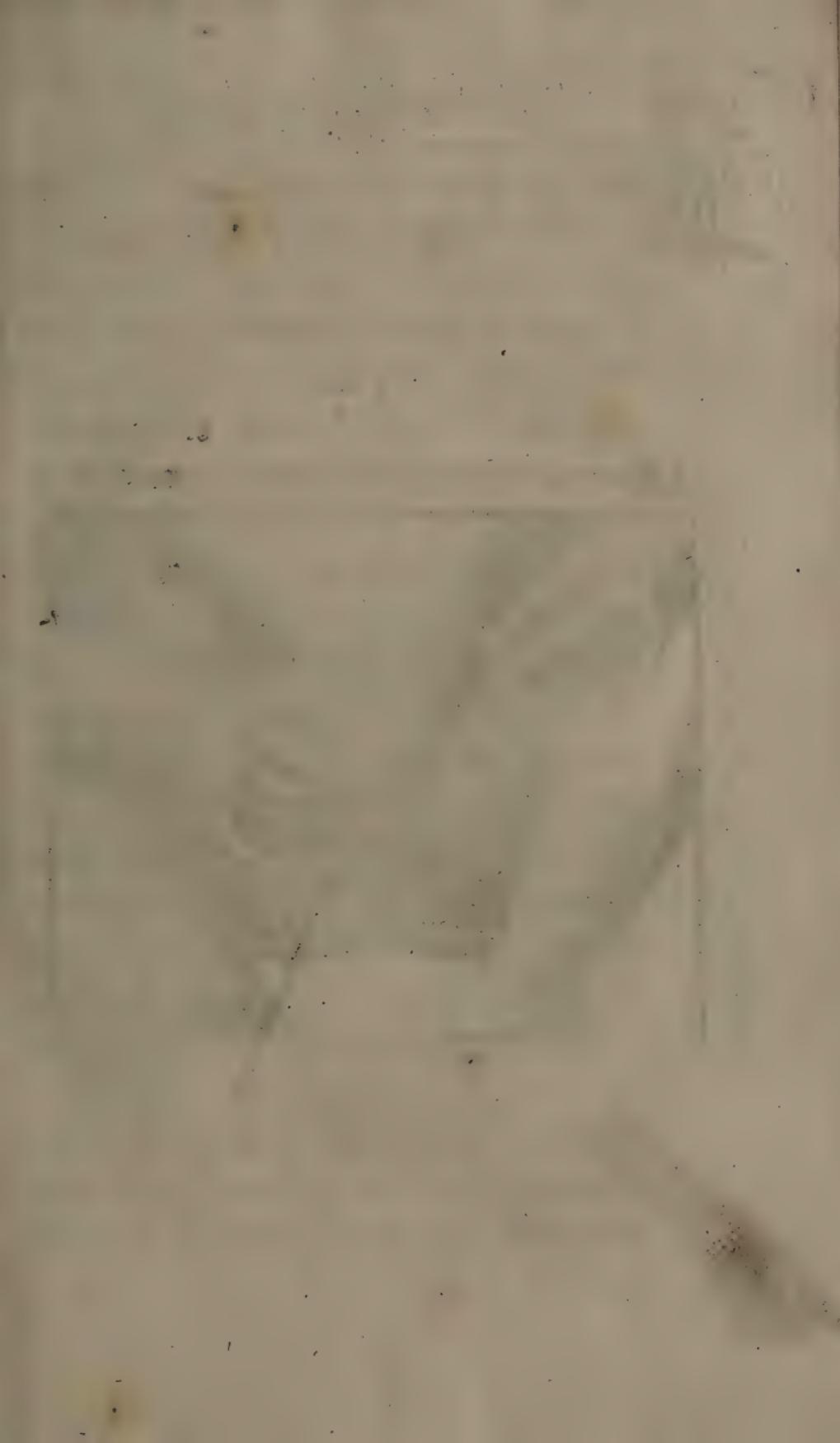
CHAP. VII.

Of the method of Searching.

Children are search'd *Digito in-*
anum Immisso, but if the Pa-
tient be a Woman; search *re-*
supinata jaceat in lecto, genubus aper-
tis, & nymphis deductis, dextra manu
immittatur Catheter (hunc in *usum fa-*
bricatus) *in meatum Urinarium, & sic*
leniter (sursum, deorsum, dextrorsum
laevorsum) inquiratur an sit calculus in
vesica, unus vel plures vel nullus, that
is, you may enquire, and search
accord-

CHAP. according to Art, whether there be
VII. one or more Stones, or none at all.

For the more easie searching of Men, they may stand upright upon their Right Leg, laying their Left Knee upon a Chair, and stretching their Bellies outward; otherwise, They may lie on their Backs with their Thighs open; when the *Lithotomist* raising the *Penis* or *Virga*, and holding it strait between the first and middle Finger of his Left Hand (*Denudata Glande*) must with the other Hand, gently thrust an Oiled *Catheter* to the very bottom of the *Urethra*, and then holding it by the strait end, like a Pen (the first and middle Finger touching the *Catheter* on one side, and the Thumb, answering exactly to the space between the two Fingers on the other side) his Hand being half open,



Page 91.



open, he must turn it towards the ^{CHAP.} ~~VII.~~ *Pubes*, which will bring the Bill of the *Catheter* towards the *Anus*; then must the *Catheter* and *Yard* be mov'd together, towards the *Groin* that is remotest from the *Lithotomist*; who at the same time, turning the *Catheter* between his Fingers, that the Bill of it may come towards the *Pubes*, must Press the *Catheter* a little more with his first Finger, (which is highest) than with the other, that the Center of motion may be upon the *Thumb*, by which means, the handle of the *Catheter* will be cover'd, and the Bill or bending of it rais'd, so as to press the *Sphincter* and enter into the Bladder: See here the *Figure*.

Whilst the *Lithotomist* turns the *Catheter* towards the *Pubes*, he must pull the *Penis* a little up, with the Fingers of his Left-hand, that the

Urethra

CHAP. VII. *Urethra* may be extended and free from Wrinkles ; because it being a *Membraneous Part*, the *Plicatures* thereof, may hinder the *Catheter* from slipping down.

Sometimes when the *Catheter* is introduc'd to the very bottom of the *Urethra*, and when the Bill of it is turn'd towards the *Pubes*, the *Lithotomist* is oblig'd to let go the *Penis*, and to put one Finger of his Left-hand into the *Anus*, and by slight compression of the *Rectum* and the *Urethra*, the *Catheter* is easily conducted into the *Bladder*, which being done, he is to draw out his Finger, and hold the *Penis* no longer.

The *Wire* or *Stillet*, must be taken out of the *Catheter*, before it be introduc'd, and when it is in the *Bladder*, it is held by the Rings betwixt the first and middle Fingers,

stop-

stopping the hollow of the *Catheter*,
with the Thumb, and turning the
back of the Hand towards the Pa-
tients Belly: Then the *Lithotomist*
is to give some easie jogs, moving
the Bill of it a little to the Right and
Left, without turning the *Catheter*
fully round.

CHAP.
VII.
~~~

The Rings, or strait end of the *Catheter* must also be mov'd down-  
wards, that the bending may mount  
towards the bottom of the Bladder,  
and sometimes they must be in-  
clin'd upwards toward the Belly;  
but not so as to force the *Catheter*  
out of the *Sphincter*; and by these  
kind of motions, if the *Lithotomist*  
be very attentive, and there is a  
Stone, he will hear a little Sound,  
like that of two small Stones touch-  
ing one another, or at least some-  
thing will be felt, that makes a  
**Collision**

CHAP. Collision with the *Catheter*, as if it  
VII. were rubb'd with a Stone.

If it floats, it may be felt, when there is Urine in the Bladder, for which reason I commonly search with a *Silver Wire*, pretty large, and bent like a *Catheter*: If you introduce your hollow *Catheter*, you must stop the hollow with your Thumb, to keep the Urine in the Bladder, but if nothing be felt, the Urine is to be let out by the *Catheter*, and then diligent search is to be made.<sup>not</sup>

There are *Rugosities* in the Bladder that sometimes deceives him that searches; but they may be discern'd by a skilfull *Lithotomist*, because in that Case he will only find something that is soft, or but moderately hard, and which makes no sound by the Touch of the *Catheter* as a Stone does: The

Bladder

Bladder in Children has no Rugo-  
sities like that in Men.

CHAP.  
VII.

Certain it is, says *Zacutus Lusitanus*, that many strange things breed in the Bladder, that Counterfeit the Stone, as *Nervous Membranes*, *Crystal fashion'd Globes*, incredible quantities of *Phlegm* and other strange things, which being kept there for some time, are afterwards (if passable) voided with the Urine.

The most excellent Dr. *Ludovicus Nonnius* relates, that a certain *Portugal Gentleman*, after grievous Torments in making Water, all supposing he had the Stone, died: Upon opening of him, there was found in his Bladder a very hard lump of Flesh, which could scarcely be cut asunder with a Raizor, and withal near the Neck of the Bladder there was found a Tumour like a Goose-Egg, full of clammy  
*tenacious*

CHAP. *tenacious Matter*, and all the body  
VII. of the Bladder was so full of hard  
Flesh, that it could scarcely contain  
6 Ounces of Urine, which was  
the Cause, when he was alive, of  
his being almost continually ob-  
lig'd to be making Water.

From this we may learn, how  
cautious People ought to be, whom  
to intrust when they are troubled  
with the Stone, or the Distempers  
that resemble it; since for want of  
Skill and Experience many have  
been Cut that have had no Stone  
at all.

Mons. Tolet relates, That a *Catheter* was introduc'd into a Man's Bladder to search for a Stone, and to draw forth his Urine, and that after the Bill of it had been inclin'd to the Right-side, and several times thrust to the bottom of the Bladder, and no Stone felt,

Rings

Rings were press'd down towards CHAP.  
the Belly, as if there had been a VII.  
design to bring out the *Catheter*,  
but when the Bill of it was judg'd  
to be near the *Sphincter* of the  
Bladder, it was turn'd to the Left-  
side, (which could not have been  
done sooner, because of the large-  
ness of the bent Part of the *Catheter*,  
and the smallness of the Patients  
Bladder) and then the *Lithotomist*  
continu'd to search for the Stone,  
which still not being felt, was after-  
wards found by searching with ano-  
ther *Catheter*, the Bill of which, from  
the beginning of the bending was  
not so long, and therefore that *Ca-*  
*theter* turn'd the easier in the Blad-  
der.

This very Case happen'd like-  
wise to me some Years ago, in  
searching one who liv'd near Ficka-  
dilly.

H . . . . These

CHAP. *VII.* These Observations instruct us what *Catheters* are to be chosen; the Bills of those for searching and voiding of Urine, are not to be as long as those we are to make *Incision* upon, which are channel'd or furrow'd.

In some Men the *Urethra* is very narrow, and then small *Catheters*, like those for Children but of a sufficient length, are requir'd.

*Catheters*, that do not easily bend or bow are likewise to be chosen, and that depends more on the Workmanship of the Artist that makes them than on him that uses them.

When a Stone is in the Neck of the Bladder, it is not necessary that a *Catheter* should be introduc'd so far as the bottom of it, because the Stone may be felt, provided the *Catheter* be only introduc'd as far

far as the bottom of the *Ure-* CHAP.  
*thra.* VII.

When there is a *Carnosity* in the *Urethra*, which will not admit of searching with a *Catheter*; the *Li-*  
*thotomist* must search by putting his Finger into the *Rectum*, and if there be a Stone, he will find a hard and ponderous Body towards the *Pubes*.

If there be an *Inflammation*, no search must be made till after *Bleeding*, and then it must be done very gently.

## C H A P. VIII.

*Of a Phymosis, and of a Stone in  
the Urethra.*

MANY Children have a *Phymosis*; to search them we must hold the *Penis* betwixt the Little Finger and the Ring Finger of the Left-hand, the back of the Hand being towards the Belly, and with the other Fingers on one side the *Penis*, and the Thumb on the other, pull back the *Prepuce*, as if one intended to skin the *Glans*, gently pressing towards that part of the *Glans* where the *Urethra* may be most dilated, then with the Right-hand the *Catheter* is to be gently introduc'd, and which you may feel

feel with the Fingers of the other CHAP.  
Hand, placing them along the VIII.  
*Urethra* on the underside of the  
*Penis.*

If the *Prepuce* be so streight that  
the *Catheter* cannot be introduc'd,  
or if the *Lithotomist* cannot hit up-  
on the Orifice of the *Urethra*, there  
is no danger in dilating the *Pre-  
puce* a little sideways with the point  
of a common *Incision Knife*, *Lancet*  
or pair of sharp *Scissars*.

Before you introduce the *Cathe-  
ter*, squeeze the *Penis* along the *Ure-  
thra* with your Fingers, and thus  
try whether you do not feel some-  
thing hard, which stops the passage,  
as *Carnosities* or Stones do.

When by feeling thus with your  
Fingers you find there is a Stone,  
and that it sticks in the middle of  
the *Penis*, between the *Glans* and  
the *Testicles*, there must be no

**CHAP.** searching with the *Catheter*, but  
**VIII.** having easily press'd the *Penis* with  
the Fingers from the *Pubes* to the  
Stone, the *Lithotomist* must with an  
*Extractor* (almost like an *Earpicker*)  
Oil'd, take out the Stone; of these  
you must have of several sizes.

See the Figure N° 11. in the Second  
Table of Instruments.

But I have met with Stones too  
large to be extracted out of that  
part without *Incision*: Sir John  
M---s in *Winchester-street*, had a  
Stone in the *Urethra* which was Py-  
ramidal, the smaller End shew'd  
it self at the upper End of the  
*Glans*. A certain Artist in *London*,  
whom I shall not name, was Four  
Hours busie in endeavouring to  
take out that Stone, had dilated  
and pull'd, and did what he could,  
Sir John S---- at last told him  
that one Mr. Boyer at *Richomond* had

recommended him to a Foreign <sup>CHAP.</sup> Physician, but he had forgot his <sup>VIII.</sup> Name, the Artist having thought a while, said he knew whom he meant, and named me, who being the same Sir John----- was told of, the Artist came himself for me, I immediately went and made *Incision a latere*, took out the Stone and employ'd the Artist to Heal the Wound : The lower part of the Stone was as big as a small Nutmeg.

*Aetius*, tells us of a certain Man, who being cruelly tormented with the Stone in the Kidney ; it was at last by an *Emollient Bath* brought down from thence to the Bladder, and so to the *Urethra*, where (near the Nut of the *Penis*) it stuck Nine Days, occasioning much Misery by the stoppage of the Urine, the Malady growing worse and worse,

CHAP. he seem'd to have a Cachexy, the  
VIII. Urine being distributed through  
the whole Body, to remedy which,  
*Baths, Fomentations, and Emollient*  
Medicines were us'd, but to no  
purpose, at length cutting, was  
propos'd, to which the Patient  
(being courageous, and rather chus-  
sing to suffer a little Pain, than die  
in that Condition) consented. And  
a Surgeon made an *Incision* be-  
neath, and with a fitting Instru-  
ment took out the Stone, which  
was exceeding hard and rough,  
whereupon many Pints of Urine  
were evacuated, which stunk so  
horribly, that it almost poyson'd  
the Standers by: The Blood was  
soon stop'd, the Wound afterward  
heal'd, and the Patient recover'd.

That Man had more courage  
than a certain Surgeon that *Zacutus*  
*Lusitanus* mentions, who tho' a  
skillful

skillful Man would not have a Stone taken out of his *Yard* (which stuck in the middle of the *Urethra* to the stopping of Urine for 15 Days together) but rather chose to Die with it, which he did: His *Yard* being afterwards open'd there was found a great round and very hard Stone, of a red Colour, having points round it, which causing large effusion of Blood, together with the stoppage of Urine kill'd him. *Thus many have died, who by Cutting might have been Cur'd.*

The same Physician relates the Case of a Strong Man, who was troubl'd Eight Days together with a continual Stoppage of his Urine, so that frighten'd with his *Malady* he began to despair of his Life: Several Physicians us'd many remedies to break and bring away the Stone, by means whereof it was

**CHAP.** was brought to the End of the  
**VIII.** *Yard*, but there stuck so fast, that  
it could not by force or use of  
*Medicaments* be remov'd, and the  
Patient was afraid to be Cut, tho'  
he knew it was the most certain and  
present Relief, but refusing, sat  
himself upon a Stool, and laid his  
*Yard* (which was very much swell'd  
by the bulk of the Stone in the  
passage) upon a wooden Table,  
and being full of Indignation, or ra-  
ther Mad as it were, with his con-  
tinual Pain and Watchings, he gave  
a mighty blow with his Fist upon  
his *Yard*, and broke the Stone into  
small bits, which presently came a  
way with abundance of Urine, and  
freed him from Death.

Whilst I was Writing this, the  
following Letter came to my  
Hands.

Bury St. Edmunds, in Suffolk, July  
27, 1709.

Sir,

SEEING in the Advertisement  
of a late Post-Man, your in-  
tentions of publishing a Treatise  
of the Stone, and observing your  
request to any Physician or Sur-  
geon, to communicate any thing  
(before the publishing of your  
Book) they thought Remarkable  
or worthy of Observation, I thought  
my self oblig'd to acquaint you  
with the following Case, which  
came under my Care, July 22d.  
1698.

A Boy of this place, aged  
about Three Years, by  
Name James Seaden, had been afflic-  
ted with the Stone from his Birth,  
and

CHAP. VIII. and after the use of several remedies ineffectually ; His Parents were advis'd to the repeated use of *Castle-Soap*, which within one Month after his constant taking of it, brought either out of the Kidneys, or out of the Bladder into the *Urethra*, the Stone I have here sent you, it lodg'd just below the Neck of the *Glans*, and had caus'd by its lying there some time, such an ulcerated Tumour upon the *Glans*, as look'd *Prima Facie* Cancerous ; However, observing the Efforts of Nature, I propos'd taking away the Stone which was consented to, and I did it by dividing the whole substance of the *Glans*, on the Left-side the *Frenum*, upon doing which, and squeezing the *Penis*, the Stone came forcibly out, and fell to the

the Floor without breaking, my CHAP.  
Patient being plac'd in the Arms VIII.  
of a Man, who sat upon an  
High-Chair, Holding him in the  
posture as Patients usually are,  
when the Operation of *Lithotomy*  
is perform'd ; I put a *Cannula*  
into the *Urethra*, and brought the  
Lips of the Wound together by  
dry Stitches. My Patient that  
Night Urin'd freely *per Cannulam* ; I  
us'd *Emmollient Fomentations*, and  
some *Abstergives* at first, and after-  
wards, by the use of the *Aq. Camphu-*  
*rata*, & *Aq. Calcis*, with proper ban-  
dage made by Strips of Plaister, I  
compleated the Cure. He was  
Purg'd during the time with  
*Lenients*, and took such quan-  
ties of *Emulsion*, as he could  
be made to do. He is now in  
perfect Health, of a Robust Ha-  
bit, and has had no Symptoms  
of

CHAP. VIII. of that tormenting Distemper  
since. The Stone I observ'd fell  
with some force upon the Floor,  
and did not break, it had not  
been expos'd to the Air above  
Three Hours, but by putting of  
it into the Box I have now sent  
it in, and shutting down the Lid,  
the Box being rather too little  
the light pressure of the Lid broke  
it into those many peices you now  
have. What I take to afford mat-  
ter of speculation, is the effect of  
the Soap, the vast distention of  
the *Urethra*, and the Operation of  
the *Nitrous* Particles of the Air  
upon the Stone after its Extracti-  
on, which I suppose render'd it  
so Friable. What is to be said  
upon these *Topicks*, I must leave  
to your discerning Faculties, and  
if by your Descants you can  
make it serviceable to Humane-  
kind,

kind, you have the liberty of Publishing it. I am, Sir, a Stranger to your Person, yet not to your Reputation in the World; having read over with extream satisfaction your Treatise of *Cantharides*, and give me leave to assure you,

*I am your Admirer, and*

*most humble Servant,*

JAMES STURGEON.

P. S. The truth of this Observation is Notorious, and the *Premium* I receiv'd for doing of it is Recorded in the publick Book of Accounts, belonging to St. James's Parish, my Patient being an object of Charity.

The

**CHAP.** The Effect of the Soap in the  
**VIII.** Case this Gentleman has sent me  
an account of, may be easily ac-  
counted for, when we consider  
the Ingredients with which it is  
made, *viz.* a *Lixivium*, almost like  
*Oleum Tartari per Deliquum*,  
which is brought to the Consist-  
ance of Soap with *Oleum Commune*  
*vel sevum Animalium* by boiling to-  
gether; the first no doubt like all  
fix'd Salts, very much attenuated  
the Blood, and caus'd thereby a  
very plentiful seperation of Urine  
which forceably drove the Stone  
(that hinder'd its expulsion) into  
the *Urethra*, the *Fibres* of which,  
the *Oleaginous* Particles of the latter  
had relax'd, so as to cause that  
Passage to suffer *Delatation* suffici-  
ent for the Stone to pass to the *Nut*  
of the *Penis*.

The

The effect of the *Nitrous* Particles of the Air upon such a hard Stone, causing it in a few Hours after *Extraction*, by a very slight compression to break (or Crumble; as I have often seen Stones do,) to small pieces, may be easily solv'd and accounted for, by an Artist competently skill'd in *Chymistry*; for by Experiments in that Noble *Art*, we find that some Bodies of but a loose Cohesion cannot be resolv'd by very strong (and with respect to other Bodies the most penetrating) *Menstruum*, but rather become harder and more compact; when nevertheless their Parts may be very easily separated and the bond of *mixtion* presently broke by *Dissolvents* much weaker, whose points are adapted to its Natural or Accidental Pores: And thus the Stone, tho' not ca-

CHAP:  
VIII.I  
pable

CHAP. pable of being dissolv'd, or its  
VIII. Parts separated by the *Sal Armoniac*  
with which the Urine is stor'd, the  
figure of its *Pores* being not suit-  
able, so as to admit the *Points* of  
the Salt to enter and separate its  
Parts; yet was easily penetrated  
by the subtile *Nitrous Particles* of  
the *Air*, the figure of which suited  
to the *Pores* of the Stone, so as to  
gain Entrance and destroy the Bond  
of *mixtion*; and thereby render'd  
it friable and easie to be broken.

Now from what I have here  
said, perhaps some may imagin that  
it is an easie thing, acting upon  
Mathematic-Chymic Principles, to  
find out a *Menstruum*, that will  
Universally dissolve Stones in Hu-  
mane Bodies; but they will be of  
another Mind if they duly consider  
the foregoing Chapters, where I have  
treated of the Difference of Stones  
taken

taken from Mankind ; some of which instead of being render'd friable when expos'd to the Air, become more firm and compact : So that the great difficulty and what seems to me next to an impossibility (especially if we may judge by what has hitherto been ineffectually try'd) is how to adapt a Medicine to every particular Stone we would dissolve, since what will break or dissolve one when out of the Body, will not another ; and this comes very near to a demonstration that one *Menstruum* cannot possibly dissolve all Stones in Humane Bodies ; yet I would not discourage the Ingenious from searching after such a great Blessing.

But to proceed : If the Stone in the *Urethra* be not too large, the *Glans* and part of the *Urethra* may be

CHAP. be dilated, and the Stone or  
VIII. Stones be extracted with a proper  
Extractor.

The Urine serves for a Remedy ;  
and if there has been a Contusion  
or great Pain, it is enough to  
Foment the *Penis*, *cum Ol. Rolar.*  
and cover the *Glans* with a Pledget  
dipp'd in *Linimentum Arcæi*, dis-  
solv'd with a little *Mel Rosar.* mo-  
derately binding it on with a cross  
Bandage open in the middle : And  
if there be occasion a Girdle may  
be put about the Patient, to which  
the Band may be ty'd, also a Collar  
may be put about the Neck, like a  
*Chair-man's-Strap*, the lower part  
of which is to be fasten'd to the  
Girdle, that it may not sink lower  
than one would have it : This Ban-  
dage serves for other Distempers of  
the *Penis*; in putting it on begin to  
apply it to the *Glans*, and then bring

it nearer to the Belly, with slight Rollings and Circumvolutions to keep the Medicine fast to the Part; and when it is brought near to the Pubes, an indifferent hard Knot is to be cast, and then the two heads at the other Extremities of the Band or Truss are to be tied to the Girdle.

The precise length and breadth of all the parts of this Bandage cannot be determin'd, because it depends upon the judgment of the *Lithotomist*, to make them of such a length and breadth as that they may not be cumbersome to the Patient.

There is still another way of extracting the Stone out of the *Penis*, when it is at a distance from the *Sphincter* of the Bladder, which is this :

Having drawn the Skin of the *Prepuce*, as much as one

CHAP. can do gently to the Nut of the  
VIII. Penis, make a Ligature with a Fillet  
betwixt the Stone and the Pubes ;  
or otherwise with the Fingers com-  
press the Penis, drawing the Skin  
strait or tight on each side, where  
the Stone is observ'd to stick, and  
afterwards make *Incision* upon the  
Stone, a little side way in the U-  
rethra, that so it may be taken out  
by means of the Extractor intro-  
duc'd into the incis'd Orifice ; then  
the Ligature being remov'd and the  
Skin loosen'd, it will of it self stop  
the Wound, which will be cur'd  
by the Balsam of the Urine almost  
alone, applying only a Stiptic Fo-  
mentation often to the wounded part,  
or making an Injection of some-  
thing of that nature into the U-  
rethra.

## CHAP. IX.

*Of the time of Searching and Cutting ;  
of the Instruments ; Of the Pa-  
tients Diet, and of the first Pre-  
paration for the Operation.*

**T**HE Patient may be search'd, or his Water drawn forth by the Catheter at any time, in order to discover the Disease.

If he finds himself troubled with the Stone, it is dangerous to delay *Cutting*, and in some Patients an immediate *Operation* is requir'd ; but we shall not here speak of the time of Necessity, but only of that of Election or Choice, which is laid hold of, when the Distemper is in such a condition as to give opportunity to do things

I 4 in

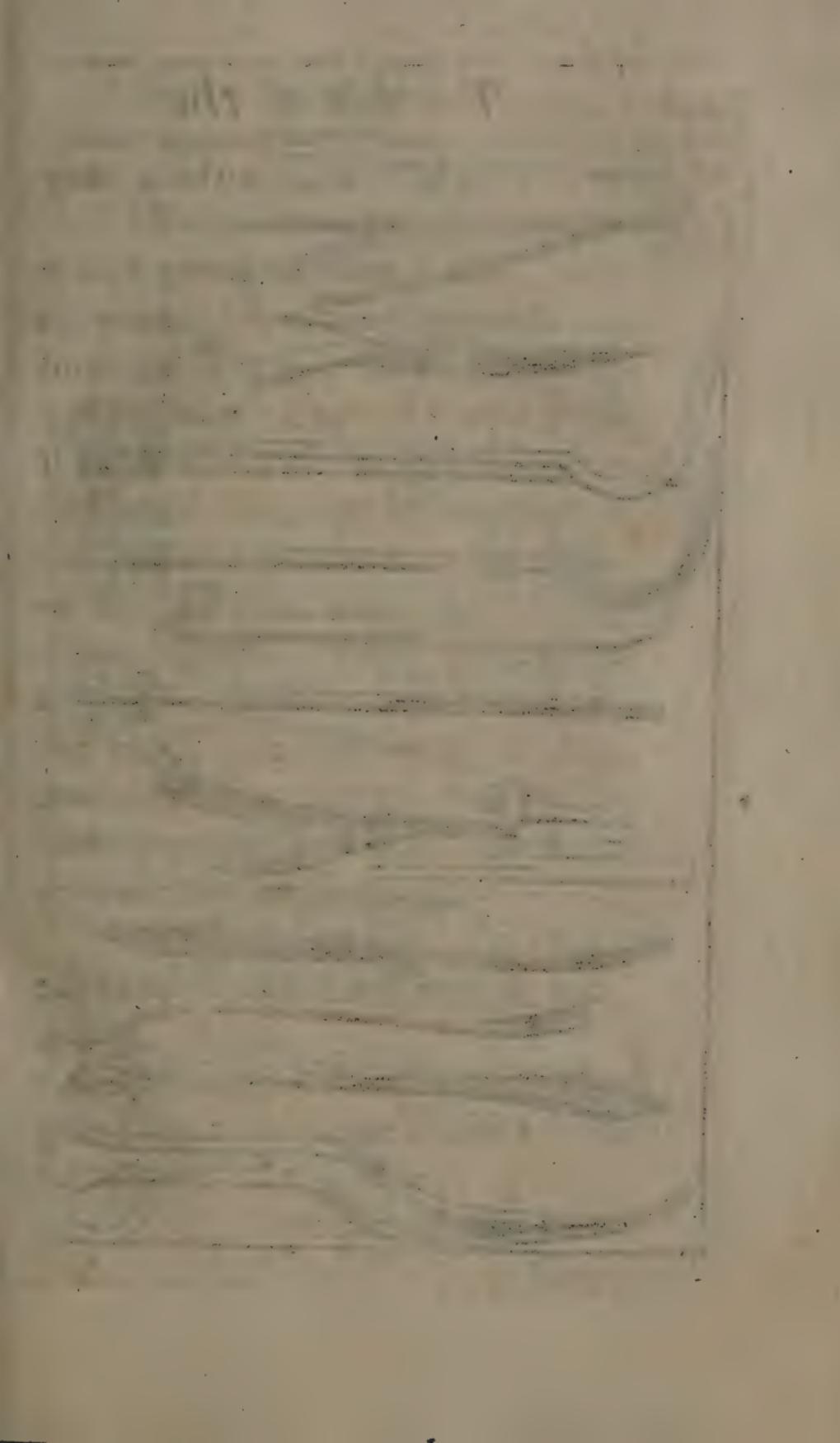
CHAP. in much order, and without any  
IX. Precipitation.

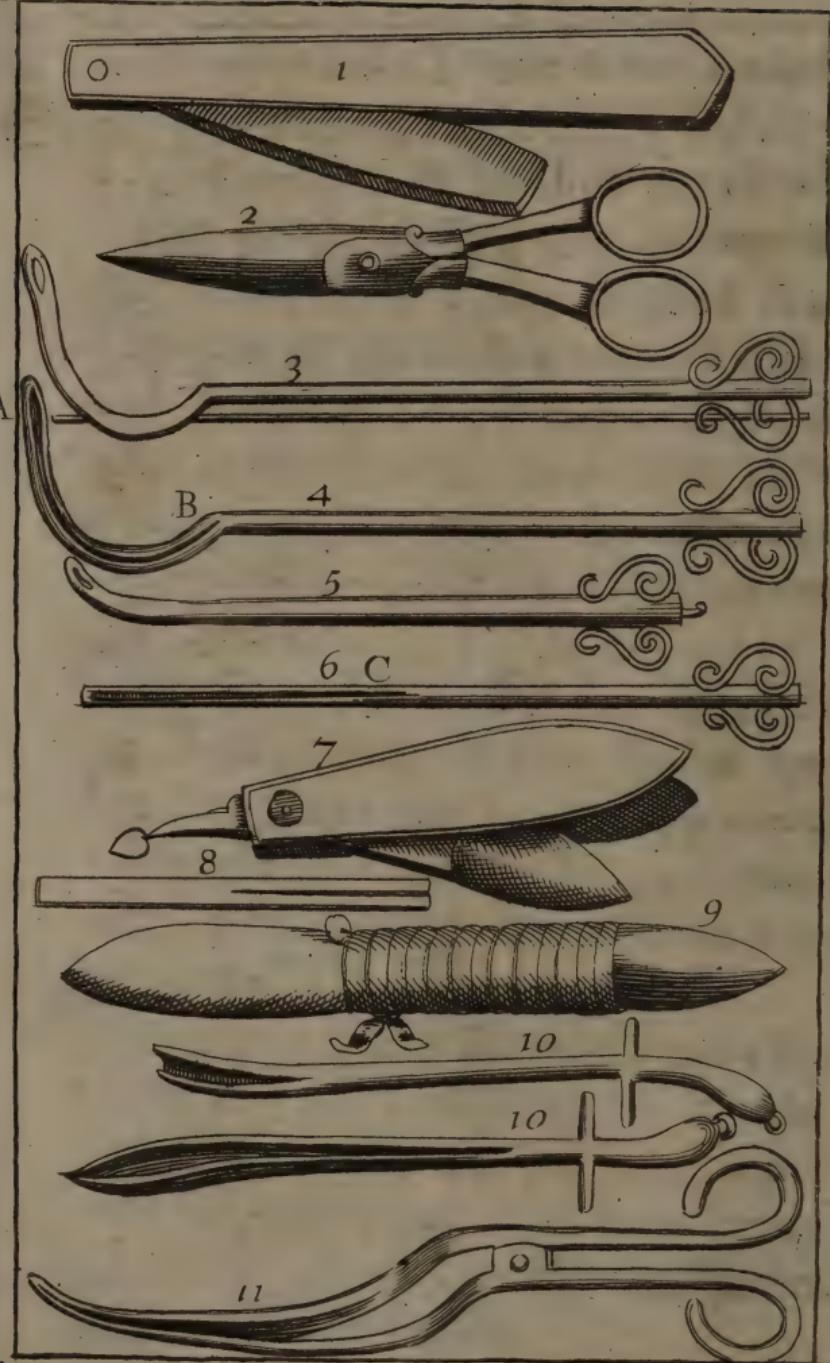
'Tis well known that the *Spring* is the most Temperate Season in the Year, and gives Vigour and Strength to Mankind, which they find renewing in themselves as it were at that time, and then they undertake what was interrupted by the excessive Cold or Heat of other Seasons.

With great reason therefore, is the Spring-time to be chosen before any other for many *Operations*, and especially for *Lithotomy*: And next to the *Spring*, the *Autumn* is to be preferr'd.

But if a good *Prognostic* may be made and the Case requires it, the *Patient* may be *Cut* at any other time of the Year, due care being taken to guard agninst the Inclemency of the Season.

And





And now tho' *Lithontriptics* (of CHAP.  
which I shall treat particularly at IX.  
the latter end of this Book) and  
*Menstruum's* for dissolving the Stone  
have been in use, and mightily ex-  
toll'd by some Persons above these  
40 Years (but to no purpose, that  
ever I could find, they having prov'd  
mere *Chimera's*) yet here for the abso-  
lute Cure of the Stone in the Blad-  
der I am oblig'd to speak of Remedies  
(if I may call them so) of *Chirur-*  
*gery*, which are *Instruments* of *Iron*,  
*Silver* or other *Metals* proper for  
*Lithotomy*; take here their *Figures* and  
the names of their *Parts*.

*In the first Plate is describ'd.*

1. A *Raisor*, to Shave the Hair  
from the Part where *Incision* is to  
be made.

2. Com-

CHAP.

IX.

## 2. Common Scissars for ordinary Incisions.

3. A hollow Sound or Probe, call'd a Catheter, for searching of Men, and making them render Urine, and its Stilet or Wire to cleanse it.

4. A Catheter or Staffe, for making Incision upon in Men, furrow'd on the back from A (which is the Bill or Bend) to B without any Cavity in its length.

5. A hollow Catheter and only crooked at the Bill, for searching of Women, and it's Wire for cleaning it.

6. A

6. A strait *Catheter* or *Staffe*, hollow'd and furrow'd from the Bill to C. It is sometimes us'd when Incision is made at the Orifice of the Urethra.

7. A *Bistori*, that opens like a *Lancet*, with a Point and Edge as that has, only the Point blunter, and at the other End it has a flat tail to keep it firm against the handle when it is open'd.

8. A *Roller* to mount the *Bistori*, it must be slit at the End, be a Finger broad, and a Foot and an half long.

9. A *Bistori* mounted or arm'd with the *Roller*.

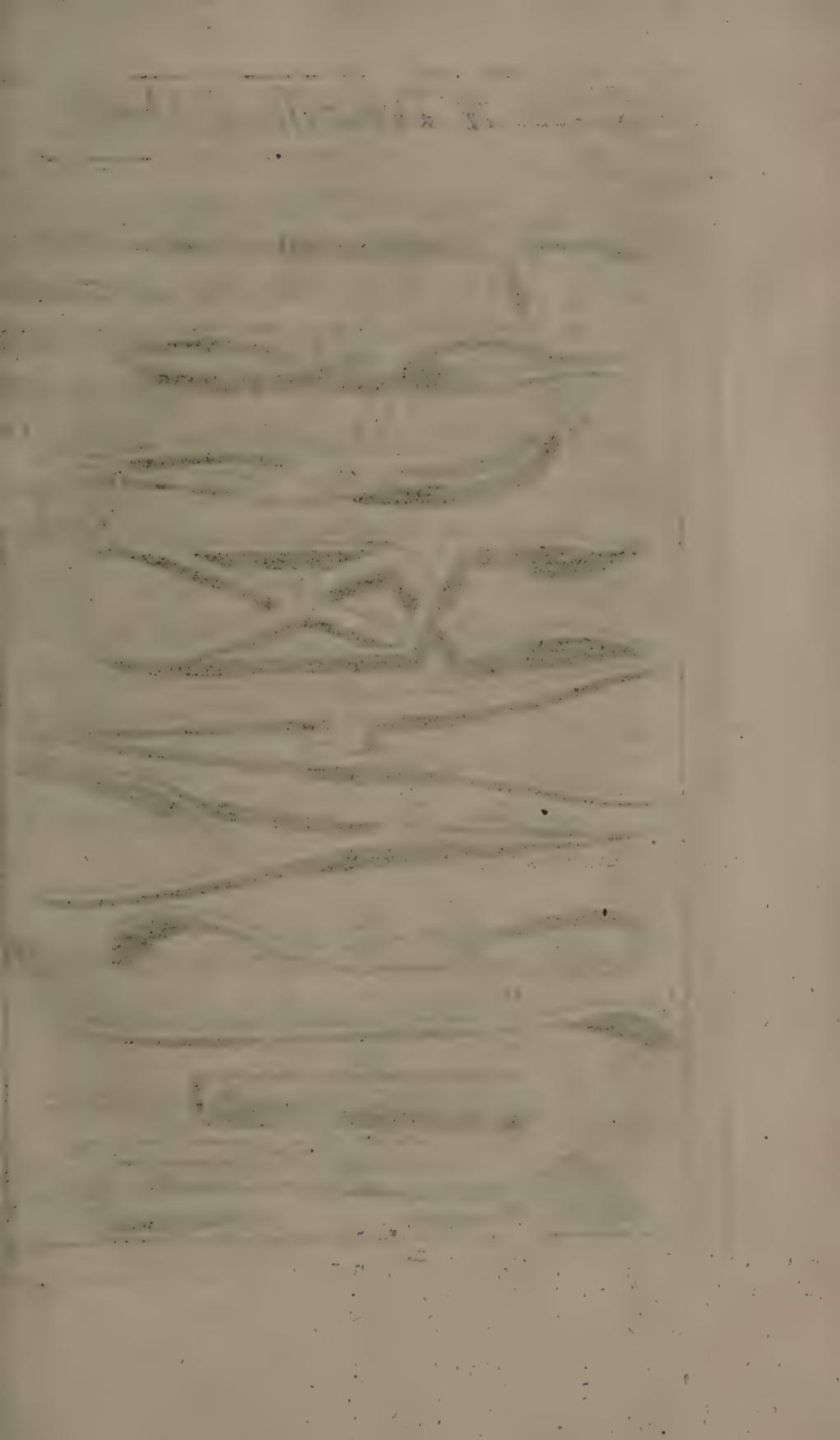
CHAP.

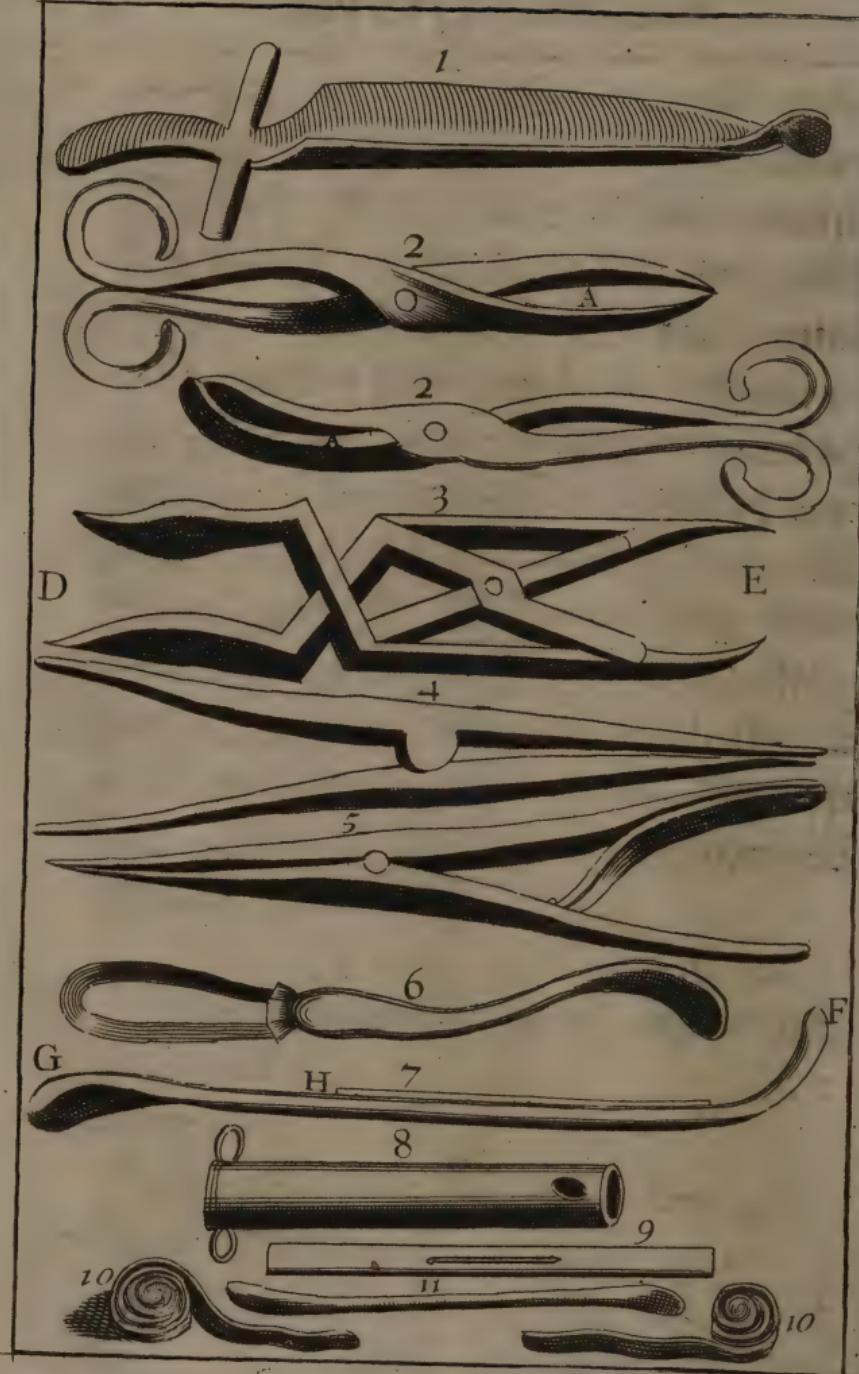
IX.

10. *Conductors or Probes*, whereof a pair serves for the Operation, that which is next to the mounted *Bistori*, is forked, and the next to that has a Line in the length of its Cavity for guiding and conducting the former. Nevertheless that at Figure 11. which is remotest from the *Bistori* may be used alone for conducting the *Forceps*, it being compos'd of the two former, turns with an Elbow about the middle, and has a Spring between the Branches near the Rings.

*In the Second Plate of Instruments  
is describ'd.*

1. Another kind of *Conductor*, more commodious, and more in use than the others; It is hollow, taper, and grows narrow at the End, where





where there is a Bill, that is to be introduced in the furrowing of the Catheter, whilst it is held by the other End, shap'd like a T. There are some that do not approve of this Conductor, alledging that it dilates the parts too much, and that it occasions Fistula's, but without ground, for it is narrower than the Foreceps with which the Stone is drawn out, possesses less room, and causes not a Fistula, That being the Consequence of the Operation, as shall be explain'd in its proper place.

2. Two Pair of Forceps, one Pair strait and the other Pair crooked.

A. Their Teeth to fix in the Stone and hold it the faster.

CHAP.

IX.

3. A Compound or great Dilatatory  
for Men.

D. The Bill.

E. The Handle.

4. A simple Dilatatory for Wo-  
men; the Extremities of it are blunt  
and very small, the Branches are join'd  
in such a manner, that closing the one  
end, the other end opens, it represents  
the Letter X.

5. Another Dilatatory that may  
serve for Women and little Boys:  
It has a Spring near the Handle,  
Dilates but moderately, and may be us'd  
with safety.

6. A

6. A *Hamulus* or *Hook* to pull out  
the Stone or Stones that are in the  
passage, either in the lesser *Opera-*  
*tion* or otherwise.

7. A *Button* or *Scoop*, about 10 In-  
ches long, and as big as a Quill.

F. *The part properly call'd the  
Button.*

G. *The other part which is hollow,  
and call'd the Scoop of the Button.*

H. *A slight Line to conduct the  
Forceps.*

8. A *Cannula*, or hollow *Tent-*  
*Pipe*, having *Rings* at one End  
call'd the *Head*, the other End is  
call'd the *Point*, where there are

two

CHAP. two holes, call'd the Eyes of the  
IX. Tent.

9. A Fillet for mounting the Hollow Tent, introducing the Tent into the Slit in the middle of the Fillet, and putting the two Ends of the Fillet through the Rings of the Tent, then it is call'd a Tent mounted, the Fillet is to be two Foot long, and a Finger broad.

10. Two Ligatures or Scarffs for Men and Women, they are made of Silk and Wool mix'd together, each of them must be Four or Five Ells long, and Four or Five Fingers broad; but if they cannot be immediately had, Bands of strong Linnen Cloath may be cut of the same length and breadth, which may afterwards be cut to serve for Trusses and for dressing the Patient.

11. An Extractor, for Extracting CHAP.  
Stones out of the Penis or U- IX.  
rethra.

In Hospitals they have a *Chair* on which the Patient is to sit, to have the *Operation* perform'd; there are two Bars or Rods of Iron behind in form of *Butteresses*, and hooked at one end, that they may enter into the Rings of the Chair, and sharp at the other, that they may strike firm into the *Floor* and keep the Chair perfectly steady, in case the Patient strugles and uses Violence in the time of the *Operation*. The *Chair* must be placed a little obliquely, that the light may come on the Right hand of the *Lithotomist*, that he may see the better, when he is about the *Operation*. But instead of such a *Chair*, the Patient may as well be seated upon a *Table*.

K with

CHAP. with a *Matrass* or *Quilt* over it,  
IX. whereof one part must cover the  
back of a common Chair, set about half a Foot distance from the  
edge of the *Table* in a sloping  
manner. There must be also a  
*Sheet* folded long ways with many  
folds to cover the *Chair* or *Table*,  
and the *Matrass* in the time of the  
*Operation.*

Most *Lithotomists* have their *Instruments* at that time orderly de-  
posited in a Budget made for that  
purpose, so as readily to be taken  
out when they find occasion.

But I commonly put my *In-  
struments* in order in a Dish, causing  
a Servant to stand or kneel on one  
Knee, on my Right Hand to hold  
them ready for my use.

It is fit that several *Bistorys* should  
be mounted or arm'd tho' there be  
but one *Operation* to be made, be-  
cause

cause their Points are something CHAP.  
blunted in using; it is necessary IX.  
also to have some Tow wound about the *Bistory* to save the Point  
harmless before the *Operation*, and  
to have some Linnen Cloaths and  
Napkins in readiness.

All the *Instruments* may be made  
of Steel, or Iron, or good tem-  
per'd Metal, that they may not  
bend in using.

But the *Catheters*, *Button*, and  
*Tent-Pipes* are best made of Silver,  
that being less subject to Rust.

It is always requisite to have in  
the *Catheter-Box*, a piece of Spunge  
moderately moist'ned with Oil of  
Roses, or Sallad-Oil, to Anoint the  
*Catheter*, otherwise it may some-  
times happen to be wanting when  
there is occasion for it.

CHAP. Of each kind of *Instruments* there  
IX. ought to be several, and those very  
well pollish'd.

Having spoken of the *Instruments* of *Surgery*, we must likewise according to the Rules of *Physic* consider what other Things are necessary before, at, and after the *Operation*, and concerning them we shall give methodical Instructions as follows.

First, Let the *Patient* (if Plethoric) be blooded, taking away a good quantity, or rather bleed him more than once before *Cutting*, which will make him more easie, abate the *Inflammation* of the Bladder, and much lessen his Pain and Heat ; but if the *Patient* be weak and feeble omit Bleeding : Let his Diet be Cooling, Moistening and of easie Digestion ; his Drink *pleasant Emulsions*,

sions, fair Water with a brown <sup>CHAP.</sup> Toast and one Glass of Canary : <sup>IX.</sup>  
Let him be kept in a moderate temper ; lying in a good Bed, not having too much Covering ; keep his Body soluble and not Costive ; and let his mind be as easie as his Case can bear.

A cooling *Lenitive Glyster* is proper to be exhibited the Day before the *Operation*.

If Purging be requisite give the common *Purge*, cum *Rhab.* *Tamarind.* & *Manna cum Syr. Ros. Solutiv.*

But in these Cases a *Physician* should be call'd in, except the *Lithotomist* be one himself, and yet tho' I one, I never hinder'd other *Physicians* coming, but am rather glad of their Company, always rememb'reing that in the multitude of Counsel there is Safety.

*Plus vident oculi quam oculus.*

In the *Operation* we are to take care to have good *Cordials*, good *Assistants* to hold the Patient, and good *External Restrингent Medicaments*. *Oxyerat*, and *Oxyrhodinum* are excellently useful.

The *Bandages*, *Plasters*, &c. as well for Men as Women must be prepar'd and laid in great readiness, they are as follows.

1. A *Ligature* or *Collar*, which must be put over the Patient's Head, and hang down as low as the *Navil*: It is a great Band, and when the two Ends are ty'd together is of an *Oval Figure*, and may be put about the Patient before the *Operation*.

2. A *Bolster* or *Compress* of a moderate thickness, Three or Four Fingers broad, to be put upon the Wound when the Patient is to be carried to Bed after the *Operation* is finish'd; it ought to be laid upon a Table, or upon a Plate by it self.

3. An *Astringent Plaister* of a sufficient bigness to cover the Belly.

4. A *Belly-cloath*, which is a great *Bolster* or *Compress* to cover the Belly, it is to be dipp'd in warm *Oxycrat*.

5. A *Bandage* or *Truss* with Four Heads, which may be call'd Twins, because they begin in the same place,

**CHAP.** place, and are design'd for one and  
**IX.** the same use.

6. A *Truss* like a double T.  
call'd the second *Truss*.

7. A *Pledget Plumacean*, covered  
with *Astringents*.

8. *Astringent-Plasters*, of several  
Sizes.

9. A *Plaster* longer then broad,  
and somewhat longer than the  
Wound, to be apply'd some Days  
after the *Operation*, over the *Pledget*.

10. A small square *Bolster* or  
*Compress* indifferently thick, and  
somewhat larger than the *Plaster*.

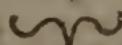
11. Another double *Compress* or *Truss* for Men, an Inch broad and a Foot long. These two *Bolsters* are to be moisten'd in warm *Oxy-*  
*crat.*

12. A *Ligature*, or long Band to be Swathed above the Knees after the Wound is Dress'd, that the Patient may keep them within a moderate distance to one another.

The *Bed* must also be prepar'd and cover'd with a Rolling Sheet, or a Sheet doubled into many folds; it must be laid cross the *Bed*, just in the Place where the *Kidneys* and *Thighs* of him that is to be Cut are to Rest, and there must be several Sheets ready to shift the *Bed* when it is wet, which must also be warm'd with a Warming-Pan, if

CHAP. if it be needful : It is requisite also  
IX. to have a good many Napkins in  
readiness to put under the Patient,  
when he has a *Looseness*, that he  
may be the sooner laid dry ; some  
*Lithotomists* order a *Cere-Cloath* to be  
put betwixt the Sheets and the Bed,  
&c. to preserve it from being  
spoil'd by the Urine, but I generally  
order a fine Leather Skin, which is  
pleasanter to the Patient and does  
full as well : It is very necessary  
also, that a Cord be fast'ned to  
the top of the Bed, or some other  
place, by the help of which, the  
Patient may raise himself with the  
greater Ease when there's occasion :  
As soon as the Patient is laid in  
his Bed after the *Operation*, an *Ano-*  
*dine draught* must be given, that he  
may lie quiet and go to Sleep.

## C H A P. X.



Of the Posture and Situation into which Children are put, when they are to be Cut.

ALL things being prepared, the Catheter's put into Oil, the Bistorys or Incision-Knives and Tents, mounted, a Tub with warm Water, plac'd underneath the Table, the Forceps, Conductors, Button and Scoop and a Dilatory (if it be necessary) all well plac'd, the Patient must be brought to the place of Operation and set upon the Chair, or Table prepar'd and fix'd a little obliquely, that the light from the Windows may dart upon the Right-side of the Lithotomist, (as before taught) who is to keep his Instruments

CHAP. ments from the sight of the Pa-  
X. tient.

And if it be a Child between Four and Twelve Years of Age, two Servants may hold him by the Hands and Feet on each side, whilst another getting up upon a little Stool, or something plac'd behind the *Chair*, and looking forwards, may commodiously lean upon the Patient's Shoulders, placing the Thumb of each Hand toward his Back, and the other Fingers upon the *Clavicles*, for the surer hold; the Servant who is on the Right side of the Patient, ought to put his Left-hand under and betwixt the Patient's Knees, and take fast hold of the Wrist of his Right-hand, and that the Child be not hurt, the Sleeve of his Shirt or Wastcoat may be pull'd down to cover his Hand; after that, the same Servant with his

Right-

Right-hand must lay hold of the Leg on the same side by the Foot and Ankle.

CHAP.  
X.

The Servant on the Patient's Left-hand must do the like, taking hold of the Left-Arm of the Patient with his Right-Hand, and the Left-Leg near to the Foot with his Left-Hand.

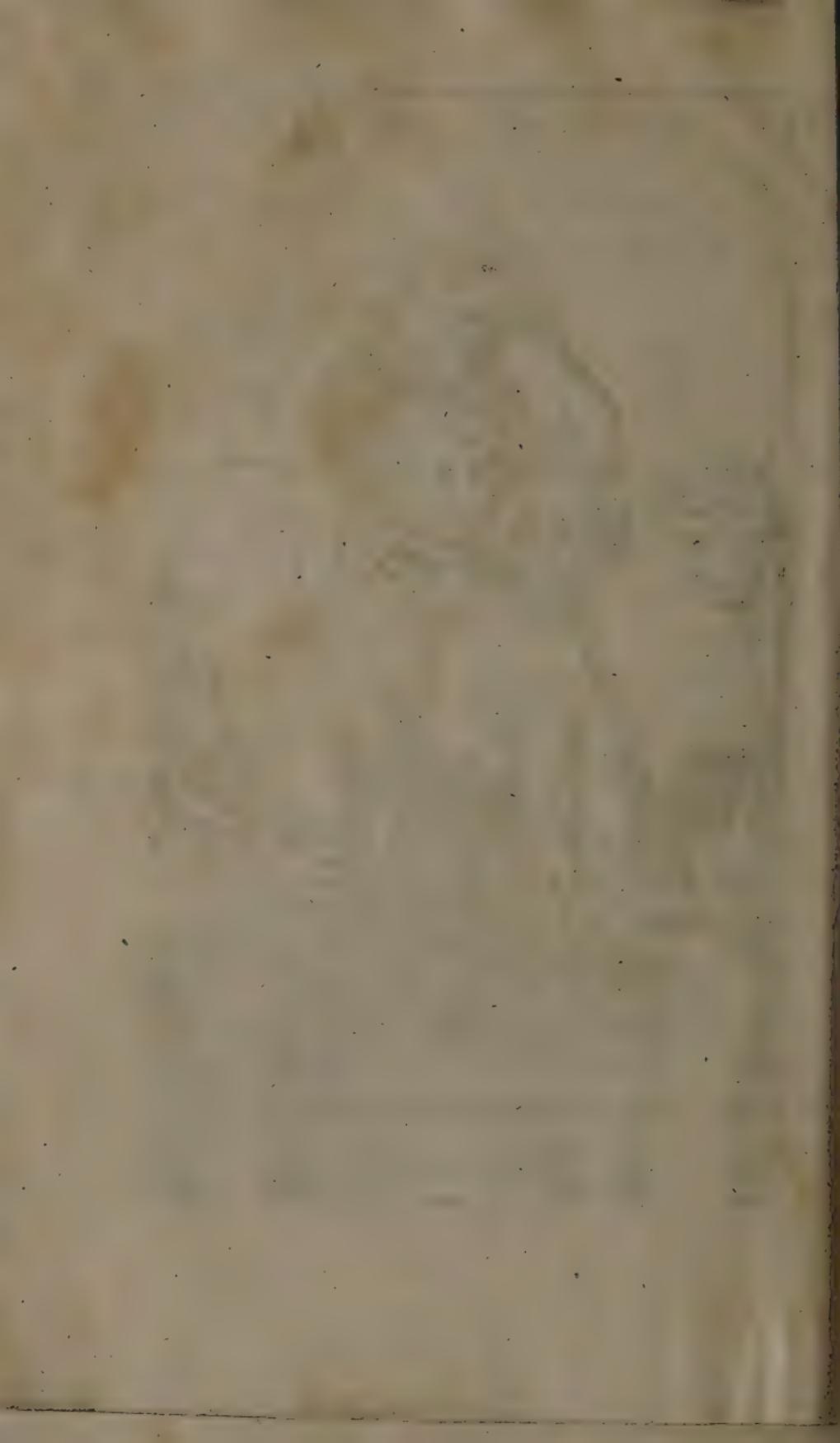
In this Posture the Child's Hands must almost touch his Heels, and if he be but any way held fast and his Thighs spread wide, the *Lithotomist* will have Room sufficient to *Operate*, yet because Children do sometimes extreamly struggle and strive, two other Servants may likewise keep their *Knees* asunder; but it is chiefly to be observ'd in this posture, that the Patient lean half backwards that his Fundament may be seen, and that his Feet do not rest upon any thing, so that

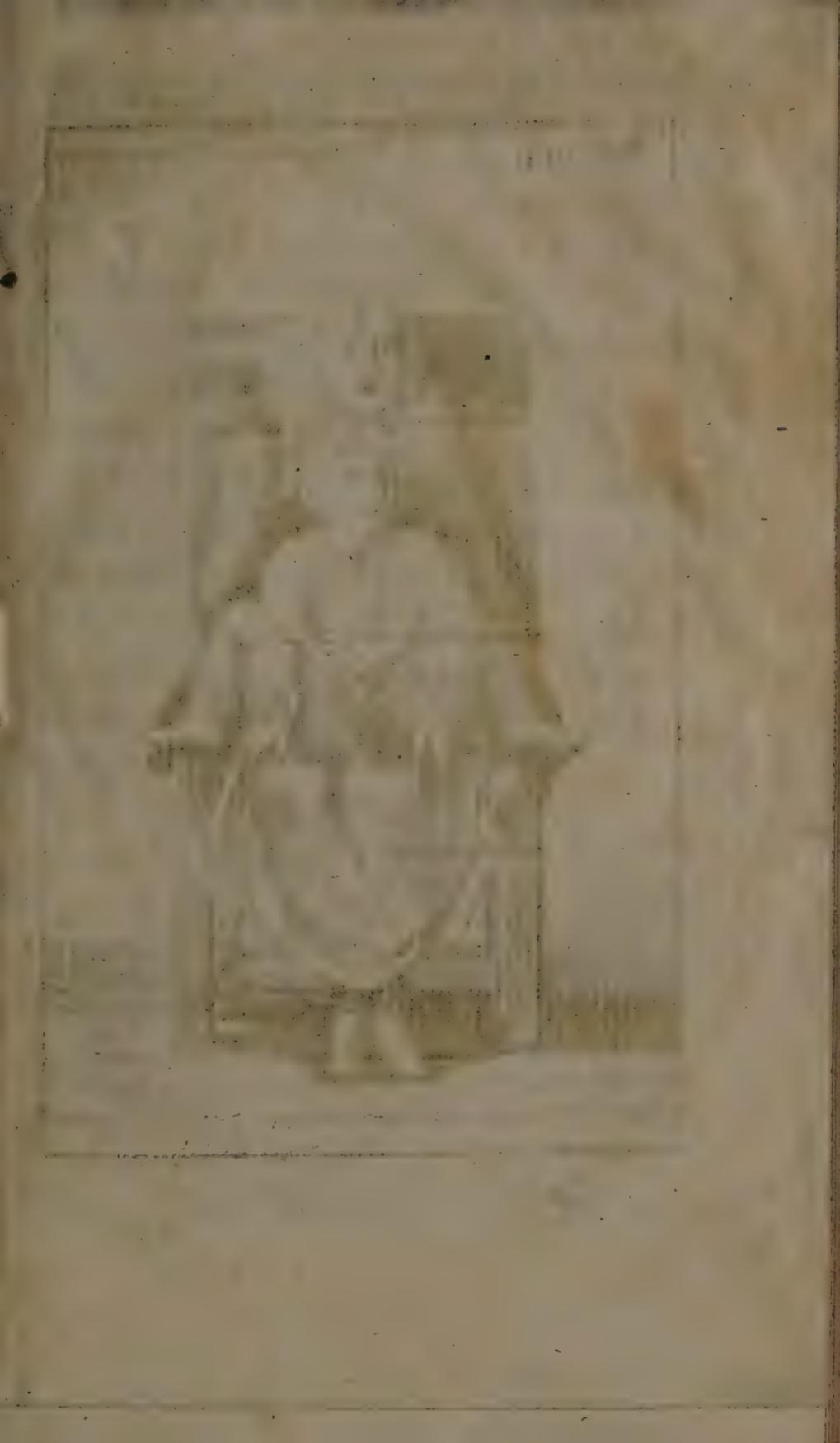
he

CHAP. he may have the less force to stir  
X. or move himself. See here the Fi-  
gure of the Posture.

But when Children are very Young, the easiest and best way, is to place them in a Man's lap to have the Operation perform'd ; for which end the *Lithotomist*, must chuse a Strong Man, and cause him to sit upon a prety high common Chair, or upon the End of a Bench, with his Knees tied together who having a large Cushing or Pillow, put against his Belly and upon his Knees, and a Sheet over it, must take the Child that is to be Cut upon his Knees, and putting his Hands under and betwixt the Childs Legs, must take hold of his two Wrists, by this means the Child is put into a very convenient and easie posture to be cut ; But besides the Man that is to hold the







*Page 143.*



the Child, it is requisite that some other Person lean upon the Child's Shoulders, and another open his Knees, and keep his Feet steddy.

*Take here the exact Figure of this Posture.*

Yet when a Child is large and strong ; and considering that the *Operation* is sometimes laborious, and that the Man who is to hold the Child may be weary, it is better to make use of the first way.

CHAP.  
X.

CHAP.

## C H A P. XI.

*Of the different ways of extracting the Stone, amongst the rest of the Lithotomia Franconiana.*

**G**REAT Pain, Inflammation, Carnosities, and Callosities do sometimes hinder the Lithotomist, that he cannot introduce a crooked Catheter into the Bladder. Prosper Alpinus, in his 3d Book, the 14th Chapt. relates several passages of the Egyptian Physicians, who (he says) extracted Stones out of the very Bladder without Cutting, by only dilating the Urethra, *Per flatum*, or by blowing into the Penis.

They had Pipes of several sizes, beginning with very small ones, and gradually introducing larger, and thus extending more and more, till

till the Passage was wide enough CHAP.  
to admit the Stone to be extracted XI.  
without *Cutting*; but to do this in  
Men must be very difficult indeed,  
it ever it was done; however we  
let the Story pass without contra-  
diction, because we have it from  
such Eminent hands.

Indeed the *Urethra* in Women  
may be dilated to a strange large-  
ness, and Stones be extracted from  
them without *Cutting*, as I my self have  
often done; particularly some Years  
since from a young Gentlewoman  
about 17 Years of Age; and of  
late from one Mrs *Fowler*, in  
*Durham-Yard*, near *Chick-lane*, in  
*Smithfield*, who gave me leave  
to mention her Name and  
whose *Urethra* I very much di-  
lated and took a Stone from her  
without making any *Incision*; it is  
not a Year and half since. Both  
these Women I perfectly Cur'd,  
L..... they

CHAP. they having no involuntary Emis-  
XI. sion of Urine, but retain their  
Water as if no Stone had been  
taken from them.

*Via in Mulieribus* (as I said be-  
fore) *latiōr est & brevior quam in*  
*Viris.*

But the method of *Petrus Francus*,  
(who is call'd by *Fabritius Hildanus*,  
the most excellent and most ex-  
pert *Lithotomist*,) is worthy to be  
noted ; he first prepared the Body  
of the Patient for some Days,  
which Preparation I have given  
you before, then he made *Incision*  
upon the furrow'd Staffe on the  
Convex part of it, putting a  
hollow Tent-Pipe or *Cannula* into  
the Wound, for the Urine to run  
through, going no further that  
time, but leaving the Stone in the  
Bladder,

Bladder, except it appear'd in the Wound, which then he took out, either with a pair of *Forceps* or the *Hamulus*, but if the Stone appear'd not in the Wound, or if it was too big to be extracted, he left it behind, dress'd the Wound and laid his Patient in Bed: And some Days after, when the Patient was in a good condition, without a Fever, and the Wound began to digest, and the Stone appear'd in it (as it will do commonly) then he took it out; this he informs us he has done often with very good Success.

But if the Stone did not appear he put his Fingers in *Anum*, and making compression upon the *Muscles* of the *Abdomen*, forc'd the Stone towards the Wound, (which he then did without any danger, because the *Tumour* or *Inflammation*

CHAP. *tion* was gone off, the Urine having  
XI. had its free course, and the Patient  
using an exquisite Diet) and drew  
it out.

But if the Stone was so big that it could not be extracted without hurting the Membraneous part of the Bladder, he then broke the Stone, which such Instruments as *Fabr. Hildanus* describes, *P. M. 113.*

The Instrument must be strong, and the Teeth of it sharp, and if the Stone cannot be broke into pieces small enough at one time, the use of the Instrument must be repeated again two or three Days after, till the Stone be so broken that the pieces may be brought forth, without hurting the Neck of the Bladder; in the interim *Anodine Medicines* must be given, and hot Fomentations apply'd to keep of an Inflammation or Gangrene, he says thus :

thus: *Consultius est Calculum frustu-* CHAP.  
XI.  
*latim extrahere, quam ægrum tanto do-*  
*lore atque miseria opprimi, semperque*  
*ex duobus malis minimum est eligen-*  
*dum.*

This method I never practised; but when I was concern'd with Mr. George Sutor Deceas'd; we had a Patient a French-Man, Mr. James Sweet by Name, who liv'd in *Nicholas-street*, near *Shore-ditch*, and whom Mr. Sutor Cut on the 24th of March 1688, and it happen'd that by indeavouring to extract the Stone he broke it into many pieces; however with my assistance several of the pieces were taken out; but the Patient bleeding very much, and growing faint, it gave me reason to fear he would Die under our Hands, if we proceeded further, therefore his Wound was Dress'd, and he was laid in his

L 3 Bed,

CHAP. Bed, and continued very Weak a  
XI. great while, and was so bad that  
it was not safe to attempt the ex-  
tracting the remaining pieces of  
the Stone (which did not appear in  
the Wound,) therefore the Wound  
was heal'd up, and in sometime  
his strength recovered ; but he felt  
some Pain, tho' not half so much  
with the Fragments of the Stone  
left in his Bladder, as he did be-  
fore it was broke : But in two  
Years after his Pains being great  
he had Courage enough to have  
the *Operation* perform'd again,  
and I successfully Cut him my  
self, and took out 32 Stones of  
various shapes and pretty large,  
he was then 22 Years of Age, and  
is now alive and well.

But *Petrus Francus* had ano-  
ther method of Extracting the  
Stone from the Bladder, which

is call'd the *Hypogastric* or *High Operation*, He was the first that practis'd *Lithotomy* that way, and gives the Reason of his attempting it, when he tells us of a Child of Two Years Old, who having a Stone in the Bladder as big as an Hens Egg was brought to him to be Cut: He us'd all his Dexterity and Industry to force the Stone down into the Neck of the Bladder, but found it impossible to be done: The poor Child was in that Torture and Misery, that the Parents wish'd him rather Dead than he should live longer in so doleful a Condition: *Petrus Francus* on the other hand thinking it would tend to his dishonour not to take away the Stone, at last resolv'd to make tryal whether he could not bring it to the very *Groin*, which he did by putting his Fingers

CHAP.  
XI.

CHAP. in *Anum*, lifting up the Stone, and  
XI. causing one of his Servants on the  
other side opposite to him, to press  
it down to the place intend-  
ed for *Incision*, which he made,  
took out the Stone, and tho' the  
Child was very weak, recover'd  
him and heal'd the Wound; but  
he admonishes others not to fol-  
low this method of *Cutting*.

*Una birundo non facit Ver.*

Yet I once had a Patient in *Long-*  
*Lane* in *Moorfields*, upon whom I  
was oblig'd to perform this high  
*Operation*, and very successfully  
Extracted the Stone, by making  
*Incision* near the *Groin*, the Patient  
soon recovering; which shews  
that Wounds in the *Fibrous* Parts  
of the Bladder are not always  
Mortal.

CHAP.

## C H A P. XII.

Of the Apparatus Minor, or Lesser Operation for Men and Boys.

Cornelius Celsus was the Inventor of this Operation, which he describes in his 7th Book, Chap. 26. it is call'd the lesser Operation because it requires fewer Instruments: When the Patient is fix'd in one of the foremention'd Postures the Lithotomist must first depress the lower part of the Abdomen or Belly of the Patient; that the Stone may the better fall to the Neck of the Bladder. Then putting one or two of his Fingers in Anum, and forcing the Stone to the proper place as Art directs, he must make Incision on the Left-side of the Suture in the Perineum upon the Stone, and endeavour

**CHAP.** endeavour to cast it forth if it be  
**XII.** little, with his Finger, which I  
have several times done, but if he  
cannot, he must take it out with the  
*Hamulus*, and if that can't be done,  
he must remove his Fingers out of  
the *Anus*, and introduce the *Button*  
into the Wound to search for the  
Stone, and having felt it, must  
conduct a pair of *Forceps* upon the  
*Button* to lay hold of it, and gently  
draw it out.

If the Patient be little, there is  
no need of making him jump, be-  
fore he be *Cut*, it is enough that he  
be put into a Posture and held by  
the Servants; the *Lithotomist* must  
have his Nails pair'd, and must not  
always dip his Finger or Fingers in  
Oil, for they being put up dry in-  
to the *Intestinum Rectum*, will pre-  
vent its being wrinkled or lying  
on the upper part of the Stone, for  
if.



Page 155.



if it should so happen when the *Incision* is made, the *Lithotomist* must of necessity *Cut the Intestine*, which the Finger or Fingers being put up dry will prevent and keep the *Intestine* in its due place, but if the Fingers are dipt into Oil, the *Intestine* may slip towards the Stone, and produce this great danger: I give only this hint to prevent ill consequences, but leave every *Lithotomist* to his Liberty: *abundans Cautela non nocet.*

In this *Operation* let a Servant lift up the *Scrotum* with one Hand, and with the other armed with a Compress lean upon the Belly, to make the Stone come down, *as it is represented in this Figure.*

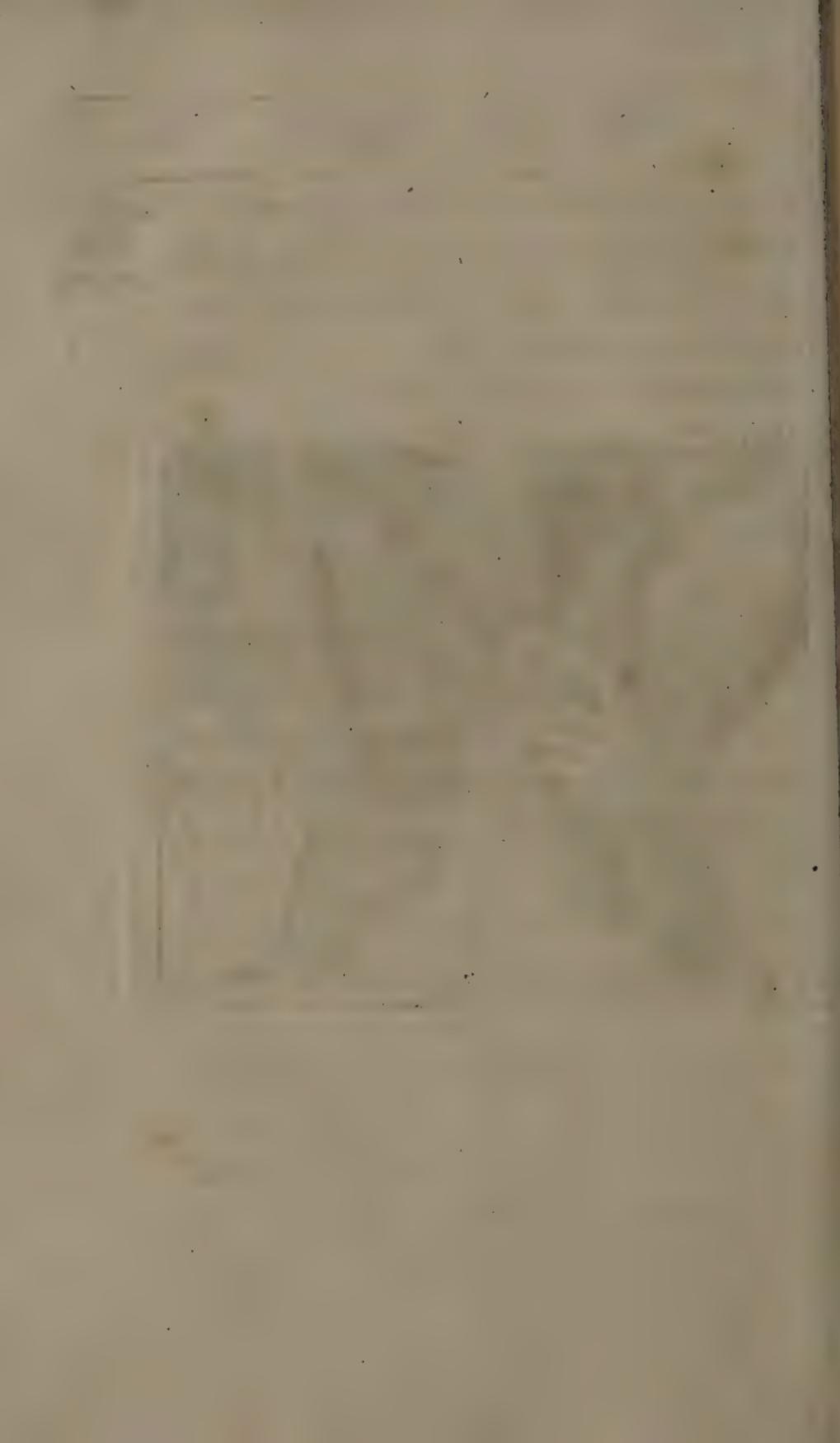
Note, That before the *Lithotomist* makes *Incision*, he must dry the *Perineum* and stretch the Skin.

CHAP. XII. The Tumour that the Stone (co-  
ver'd with *Teguments*) makes, ren-  
ders the *Incision* on the side of the  
*Suture* easie, and which may be  
made long enough for extracting  
of the Stone; the *Lithotomist* must  
not fear the spoiling of the Edge  
or Point of the *Bistori* or *Knife*,  
for every time it is to be us'd it  
must be set again: When the *In-  
cision* is made, the Fingers must not  
be drawn out of the *Intestinum Re-  
ctum*; but keeping them in, the *Hamu-  
lus* must be put into the Wound and  
slip'd between the *Pubes* and the  
Stone. As described in this Fi-  
gure.

By what *Operation* soever a *Li-  
thotomist* Cuts a Patient; when a  
Stone breaks, he must with his  
Fingers in *Ano*, keep the fragments  
forward to the Wound, and take  
them out with the *Scoope* or *Hamulus*,  
and

*Page 156.*





and also search with the *Button* af-  
terwards least any Pieces should be  
left behind, and if any are felt,  
they must be extracted with the  
*Forceps* as before taught.

If the Patient has been *Cut* for  
the Stone before, then the *Incision*  
must be made upon the *Cicatrice* or  
*Fistula*: In my Practice I have *Cut*  
Seven Patients, who had undergone  
the *Operation* before, and they all  
recovered, one of them had been  
*Cut* twice before, and lives still in  
*Watling-street*, and is very well.

CHAP.  
XII.

CHAP.

*Of the Lesser and Greater Operation  
for Women and Maids.*

**T**HE Lithotomist must thrust the first Finger (called *Digitus Index*) of his Right-Hand into the *Vaginam Uteri* in Women, inclining the Finger upwards to the *Os Pubis*, and with his Left-Hand must press the *Belly* downwards, and if there be a Stone in the *Bladder* he will find it; otherways he, may search with the Womens *Catheter* introducing it into the *Urethra* and moving it forwards and backwards, up and down, on the Right and Left, and thus he will find the Stone or Stones if any there be; but if the Patient is very Young

Young the *Lithotomist* must search CHAP.  
XIII.  
*digito in anum Immisso*, as you search  
little Boys.

When the *Lithotomist* is to extirpate the Stone, he must make use of the hollow strait *Catheter*, which being introduc'd into the *Urethra*, must be held by a Servant, and the *Orifice* of the *Urethra* must be *Dilated* by a Simple *Dilatatory*, conducted in the *Cavity* of the *Catheter*: The *Orifice* must not be *dilated* too much forward, because the *passage* being short, if the *Fibres* are delacerated, it may cause an involuntary emission of the *Urine*; the *Dilatation* being made, the *Catheter* must be taken out with the *Dilatatory*, and the Fingers being still in the same place, into which they were introduced, the Stone must by them be kept forward and be drawn out with the *Hamulus*, or with the *For-*  
*ceps*,

CHAP. ceps; in the same manner as from  
XIII. Little Boys.

But Young-Women and Girls may be excus'd from the Violence which they suffer by this Lesser Operation, because the Great Operation is more convenient, and is thus perform'd; the Patient (if very Young) must be plac'd upon a strongs Man's Knees (as before describ'd for Little Boys) and being held in a convenient Posture, the Conductor, which is shaped like a Sword, and has a Bill, must be introduc'd into the Urethra, and then a small Dilatatory; and having made a moderate Dilatation, while the Dilatatory is still open, the Lithotomist according to his own discretion and the bigness of the Stone, may make a small Incision to the Right and Left of the External Orifice of the Passage, then drawing out

out the *Dilatatory*, and introducing CHAP.  
XIII. the *Forceps* along the *Conductor* must take hold of the Stone, and extract it in the usual manner. But strong Women must be plac'd in the same Posture to have this *Operation* perform'd, that Men are, which Posture we shall describe in the following Chapter; it is scarce credible how much the *Urethra* may be *Dilated* both in Men and Women: I have taken away from a Virgin of Sixteen Years of Age, a Triangular Stone of the bigness of an Egg, if we may imagine it of that shape, by only *Dilating* the *Urethra* without *Cutting* or in the least tearing it; and by applying ordinary means, in Three Weeks she was sound and firm, holding her Water as well as ever.

CHAP.

XIII.

There are some *Lithotomists* who having introduc'd the strait hollow *Catheter*, thrust in also the *Conductor* shap'd like a *Sword*; and then the *Catheter* being drawn out, they easily slip in the other forked *Conductor*, because the first has a Line that directs the second; and between these two *Conductors* which they press betwixt the Fore-finger and Middle-finger of the Left-Hand, they thrust in the *For-ceps* to continue the *Operation* and take out the Stone. And thus the Great *Operation* is much easier perform'd in Women and with abundance less Danger than in Men.

CHAP.

## C H A P. XIV.

*Of the Apparatus Major, or Great Operation in Men and Boys.*

**J**oanes de Romanis a Physician of Cremona, in the Year 1520, invented and practis'd at Rome, the great *Operation*, so called, because it requires more *Instruments* than other methods do.

Men who are *Cut* by the great *Operation* occasion a great deal more trouble then Women, not only in respect to the *Operation* it self, but likewise in respect to the *Cure*; because their *Urethra* is much more crooked, long, and narrow, and their way of Living renders that part many times subject to more

CHAP. Diseases than those Parts in Wo-  
XIV. men.

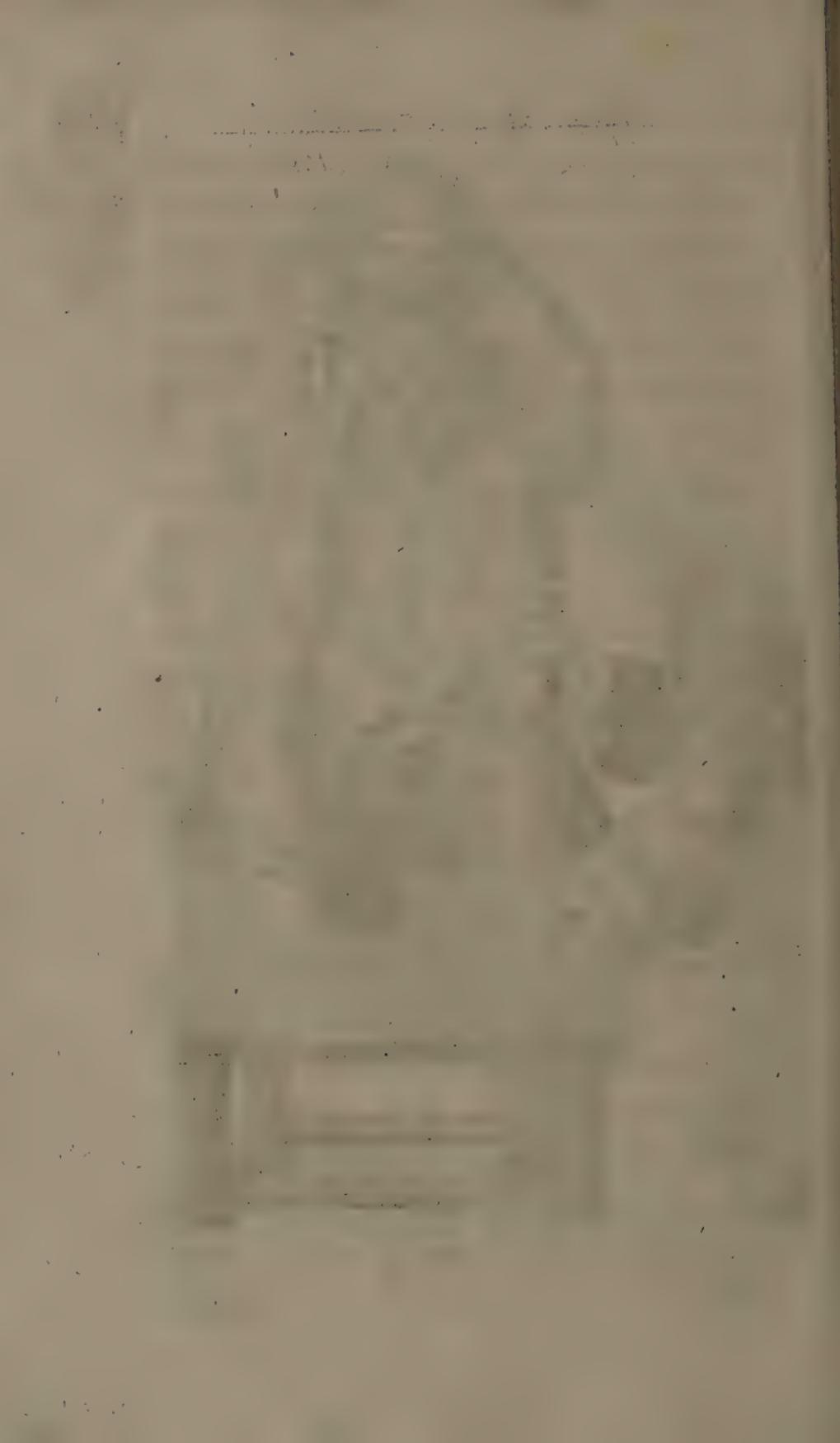
When the Patient is prepar'd and ready, he must be set upon the *Chair* or a *Table* of an indifferent length, his *Buttocks* a little rais'd, and his Head and Body inclining backwards, and leaning upon the back of a common *Chair* reversed; and that the Patient may continue fix'd in a good Posture, two *Scarffs* must be made use of in this manner; having laid them long ways, they must be tied both together by a Knot in the middle, so that the ends of the *Scarffs* being extended may appear like a *Cross*, and then they must be put about the Patient's Neck, (if they be too long, they may be short'ned by tying another Knot,) the Knot and a Noose made in the same *Scarffs*

Scarffs must hang down behind. CHAP.  
This being done, the *Lithotomist* XIV.  
taking two ends of the Scarffs on  
the right side, and a Servant the  
other two ends on the Left-side  
both of them standing before the  
Patient, and making him set his  
feet against them, the *Lithotomist*  
and his Servant each on his side  
must bring one of the ends of  
the Scarffs before, upon the Clavicles  
and another end be-  
hind upon the Shoulder-Blades,  
and then bringing them cross-  
ways under the Armpits, they  
must twist them together, giving  
them two or three turns; after  
which they must bring the Patient's  
*Knees* as near as they can to his  
*Belly*, and at the same time bring  
one end of the Scarffs on the inside  
of his *Knees*, and another on the  
outside of them, and join them  
both

CHAP. both together underneath, giving  
XIV. them a cast over one another; then also the Patients *Heels* must be raised near to his *Buttocks*, that his *Legs* may be tied in the same manner; and after that, causing him to put his Four *Fingers* of each Hand under the Souls of his *Feet*, and his *Thumbs* below the External *Ankle-bones*, as if he were to take hold of his *Heels*, they must tye the *Wrist* and *Hand* to the *Leg* and *Foot* on each side, bringing the ends of the *Scarffs* under the *Feet* like *Stirrops*, and drawing them betwixt the *Feet* and the *Thumbs*, because the *Ligatures* being to be made indifferently strait, they would hurt the *Thumbs*, if they were ty'd upon them, to which the Patient's struglings would not a little contribute. See here the exact Figure of the Posture and Swathings.

This





This posture is somewhat terrible to the Patient, and therefore since there are some Men of a strong Resolution and invincible Courage, if they be unwilling to suffer these *Ligatures*; it will be sufficient to bind their *Thighs* and *Legs* only in the manner describ'd, causing their Arms to be held by two Men; or perhaps they may like it better to have their *Hands* tied together, for which end laying their *Wrists* one upon another, they must be ty'd together with the middle of a *Band* wrapp'd two or three times about them, and then two indifferent hard Knots, being cast the two ends of the *Band* must be brought about the Neck and ty'd, together with a slip Knot, so that the Patient's *Hands* may rest about the Pit of the Stomach or the *Cartilago Ensiformis*.

CHAP.  
XIV.

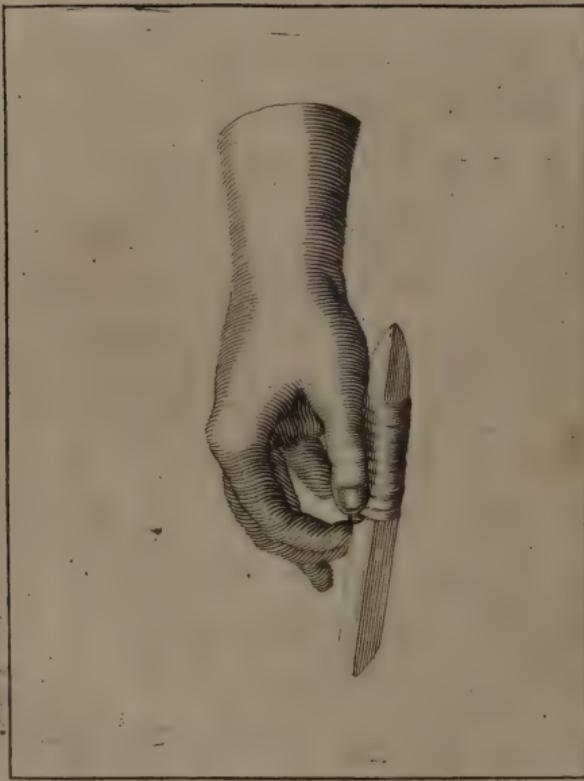
**CHAP.** Whilst this *Apparatus* is making,  
**XIV.** it is fit the *Lithotomist* should speak  
to the Patient, but not in many  
words, that he look upon him and  
incourage him with discourse, shun-  
ning every thing that is undecent,  
and obliging those that are present to  
be silent and attentive, which com-  
forts a Patient wonderfully; calling  
to mind that to make light of the  
*Disease*, the Infirmitiy or Expressions  
of a Patient, is no better than to  
insult over a Man in Affliction.

It is always best to have few  
Spectators, and those such as are  
necessary to help; a great many  
may incommod the *Lithotomist*,  
frighten the Patient, and put a  
bad Construction on the Accidents  
that sometimes accompany the  
*Operation.*

When



Page, 169.



When the Patient is seated, the <sup>CHAP.</sup> *Lithotomist* must place his *People* to <sup>XIV.</sup> support him, spread open his *Knees*, lean upon his *Shoulders*, and to lift up the *Scrotum*, a Servant must be at the Right-Hand of the *Lithotomist* to hold the *Bistury*, ready for him to take it, when there is occasion, but must hide the Blade in his Hand, *as here represented*.

The Servants are plac'd in the same manner for the Lesser as for the Great *Operation*; but they hold the Patient in a different manner, as it has been represented by the Figures.

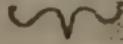
When there is a *Hernia* or *Burstness*, the *Scrotum* is to be lifted up very high, and care is to be taken in making the *Incision* not to hurt the *Testicles*, nor the Parts affected by the *Hernia*.

Before

**CHAP.** Before the *Operation* there is sometimes a *Procidentia* or falling of the *Anus*, occasioned by the straining of the Patient: If the falling be considerable, the *Lithotomist* may thrust it up without Violence, and then lay a *Bolster* upon the *Anus*, which a Servant is to press hard: But if the Servant's Hand hinders the *Operator*, there must nothing be put to the *Rectum*, for after the *Operation* is over it is easily reduced, and in all my *Practice* it never return'd again, using *Stiptick Fomentations*, &c.

If the Patient has been *Cut* before, (as already mentioned) the *Incision* is to be made upon the *Cicatrice*, taking heed not to cut the *Suture*, because it does not so easily *Cicatrize*, and is also attended by many Accidents.

The *Incision* in Children is at least made Two Fingers breadth long; in Men Three or Four Fingers breadth or there abouts according to the bigness of the Stone, and circumstances of the Patient. It ought not to be too large, for when the Stone is in the passage, if the *Incision* happen to prove too small, it may easily be in-larg'd with the *Bistury*, or a pair of *Probe-Scissars*.

C<sub>H</sub>A<sub>P</sub>.  
XIV.  


The *Incision* of the Skin and Membranes is easily made, but many times the *Urethra* is not sufficiently opened unless one press the *Bistury* hard in the furrow of the Staff.

*Incision* is never made in the Neck of the Bladder, but always in the *Urethra*, and Experience convinces that a great *Incision* in the *Operation* is as soon Cicatris'd as a small one.

The Patient being set in a posture and bound with the *Scarffs*, his *Arms* and

CHAP. and Legs held by two Strong Men,  
XIV. and if need be two others to keep his  
Knees asunder, and one placed behind the *Chair* or *Table* to press upon his Shoulders, *Lithotomy* must then be performed, if possible by the *Lesser Operation* before taught, or at least by this Great, introducing the furrowed *Catheter*, with which the *Lithotomist* first searches, and is certain if there be a Stone or not.

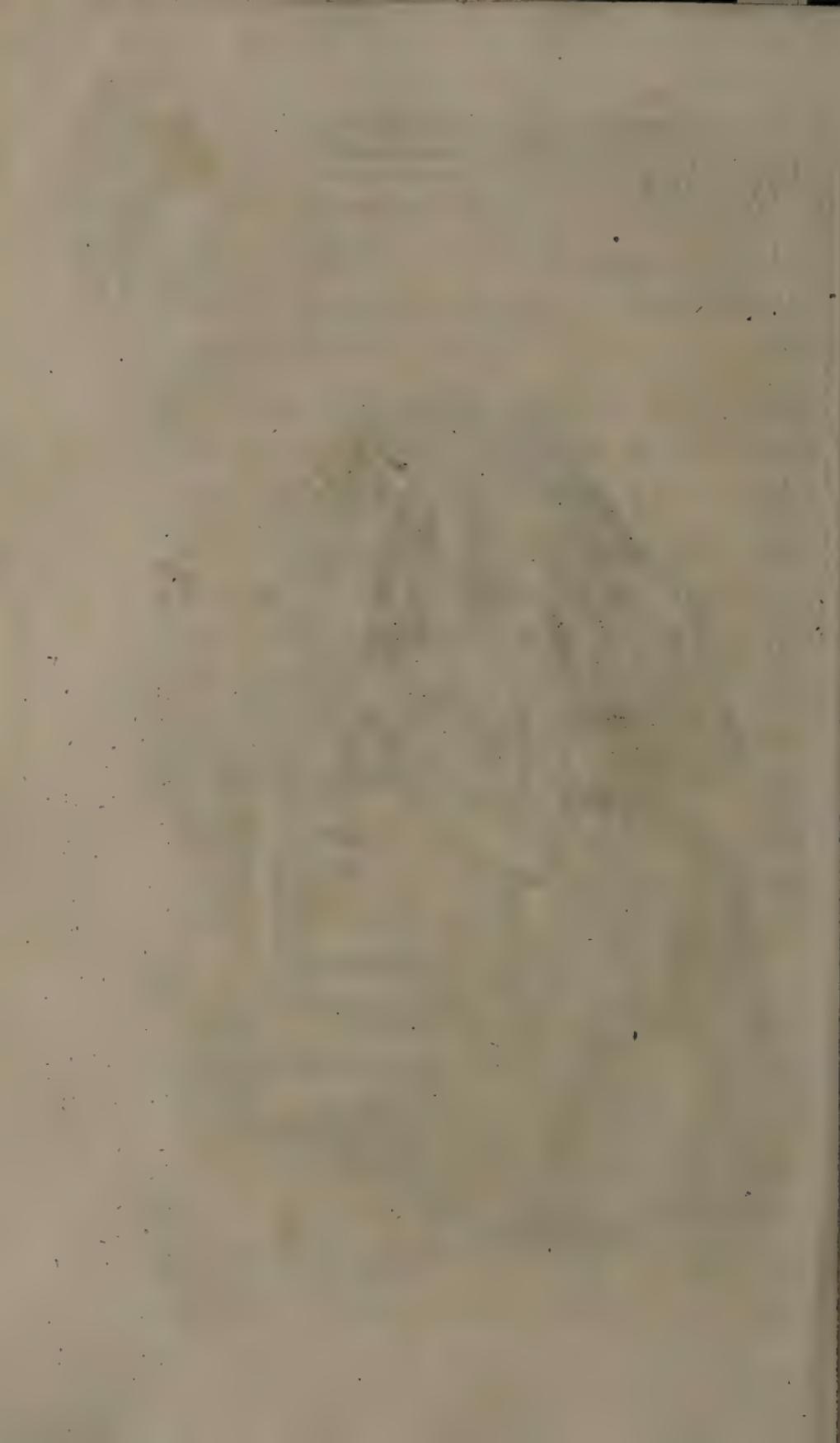
N. B. If nothing be felt with the furrowed *Catheter*, it is necessary to introduce a hollow *Catheter* that has a shorter *Bill*, making the Patient void his Urine thro' it, and if there be a Stone it will by that means be more easily found, because when it floats, it will follow the course of the Urine; the *Bill* of the *Catheter* also being short will turn better in the Bladder. When the Stone is found, the furrow'd *Catheter* is again to be introduced. If

If the Patient has been Cut before,<sup>CHAP.</sup>  
it is harder to introduce the Catheter,<sup>XIV.</sup>  
and therefore one is to be taken of a  
size that would suit with a younger  
Subject, and sufficiently long, ac-  
cording to the Age of him that is  
to be searched. There are some *Lithotomists* who hold the *Catheter* them-  
selves when they make the *Incision*:  
Others cause a Servant to hold it,  
who is placed at the side of the Chair,  
opposite to the Part where the *Litho-*  
*tomist* is to make the *Incision*; for Ex-  
ample, the *Lithotomist* performing his  
*Operation* on the left side of the *Suture*,  
the Servant must be on the Patient's  
Right-Hand, and having wiped and  
dried the *Scrotum* and *Perineum*, he  
must lift up the *Scrotum* with his Left-  
Hand, and rest his other Hand  
upon the Rings and end of the *Ca-*  
*theter*, inclining the furrowing a little  
to the Patients left side, but must  
take

CHAP. take care not to make it come out of  
XIV. the Bladder, which he may avoid if  
he bring not the *Rings* of the *Catheter*  
too near the *Belly*.

The *Lithotomist* ought to mind first  
that the Servant holds it right, bid-  
ding him hold it fast and not waver,  
and causing others to lean upon the  
Patient's Shoulders, because at that  
very time the *Lithotomist* ought to pull  
the *Suture* toward the Right-side,  
placing the Thumb of his Left-hand  
near the *Anus*, and his other near the  
*Scrotum*, and having felt with the  
Fore-Finger of the Right-hand, and  
observed the place where the back of  
the *Catheter* is, in the same manner as  
one does to find the *Vein* before  
Blood-letting (*as represented here in the  
Figure*) and pulling still the *Suture*  
to the Right, with his Right-hand he  
must take the mounted *Bistori* from  
a Servant, and in making the *Incision*  
he





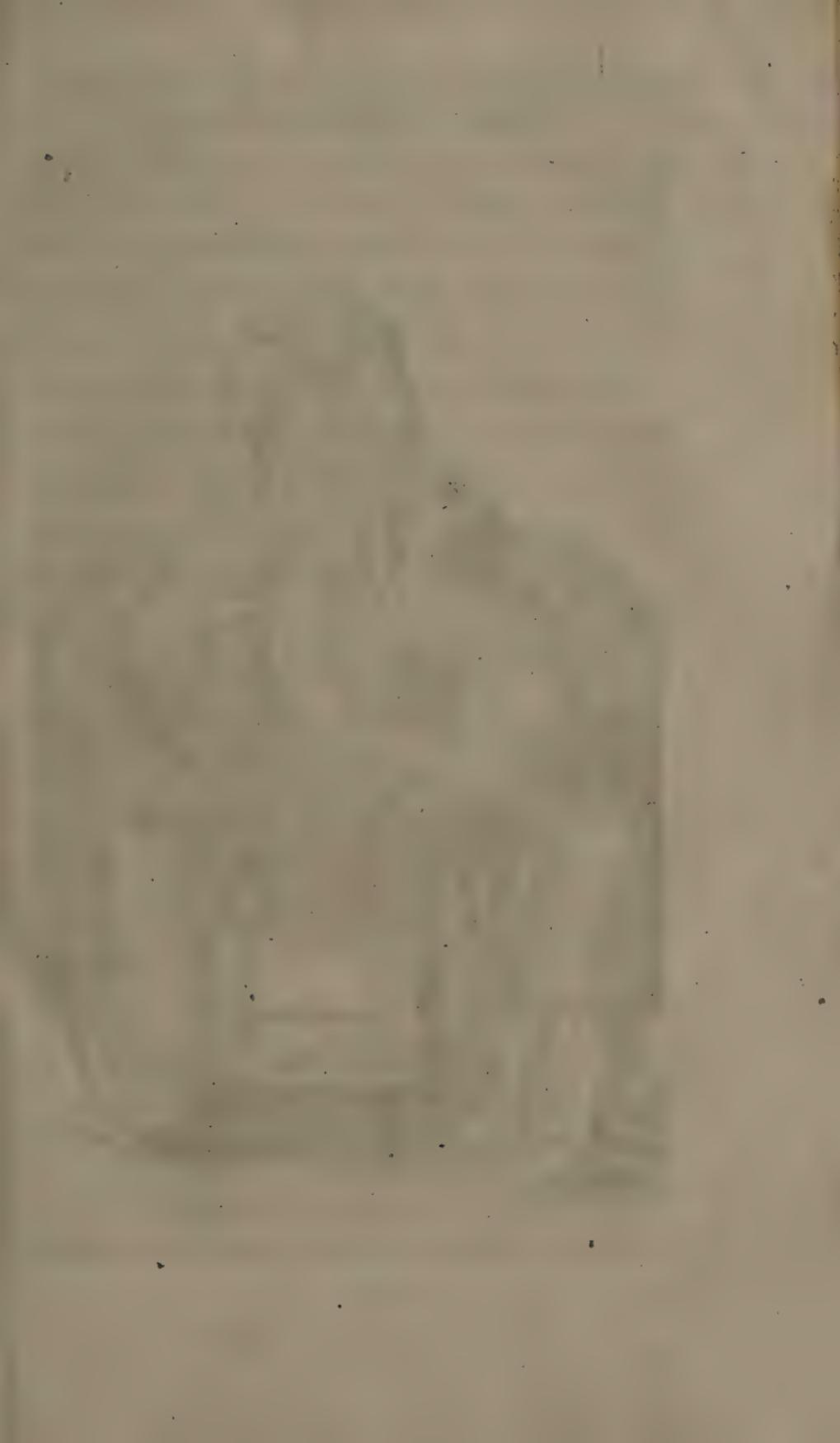
he is to search for the furrowing of CHAP. the *Catheter*, into which he is to thrust XIV. the point of the *Bistury*, and then press hard, above towards the *Scrotum* and below, sinking the *Wrist*, that the point of the *Bistury* may be always directed into the furrowing underneath the *Catheter*, that the *Urethra* may be exactly *Cut*, avoiding the *Scrotum*, the *Rectum*, and the *Hemmerrhoide Veins*; then he must return the *Bistury* to a Servant, and take the *Conductor* and introduce it into the furrowing; after which, with the Left-hand he must lay hold on the *Catheter*, by the end which the Servant held.

To prevent the Fingers of the *Lithotomist's* Left-hand from sliding during the time of the *Incision*, he may make use of a very narrow *Compress* to help him to press and pull the *Suture* towards the Patient's Right-side. If

**CHAP.** If in making Incision the Lithotomist  
**XIV.** himself holds the Catheter, the Ser-  
vant who extends the Perineum may  
upon the same account put very  
narrow Compresses betwixt his Fingers  
and the Patient's Skin, that so he  
may hold the two sides of the Suture  
firmer towards the Thighs; by  
that means the Humidity will not  
hinder him to press upon them as  
much as is necessary.

I remember Monsieur Collot who's  
several Operations I have seen both at  
*Amsterdam* about 40 Years ago, and  
here in *London*, about 33 Years since,  
performed the Operation in this fol-  
lowing manner.

After he had introduc'd the Ca-  
theter, and was sure of the Stone,  
he caus'd a Servant plac'd on the  
Patient's Right-side to lift up the  
Scrotum, and having dried the Parts  
that were wet, the same Servant hold-  
ing





ing his Hands almost open, with his Right-Hand pull'd the *Suture*, to the Right-side, and with his other Hand, the Skin to the Left, resting his Hands towards the Patient's Groins, so that they lifted or kept up the *Scrotum* at the same time; and then that Ingenious *Lithotomist* inclin'd the *Catheter* a little towards the *Belly*, and with his Left-hand press'd upon the *Rings*, whilst with his Right-Fore-finger he mark'd the place of *Incision*; then was the *Bistury* or the *Knife* presented to him, and during the time, that the Servant held the *Perineum* stretch'd to the Right and Left, without the use of *Compresses* he made the *Incision* as others do.

Take this for the Figure of it.

The Servant may also with one Hand lift up the *Scrotum*, whilst

N

with

CHAP. with the other that is extended he  
XIV. presses hard upon the *Perineum*,  
holding between Two Fingers the  
place where the *Lithotomist* intends  
make the *Incision*. Otherwise the  
Servant may hide his two Thumbs  
in his Hands, and with his two  
Fore-fingers extend the *Perineum* for  
the same purpose.

The furrowing of the *Catheter*  
being discovered, and the *Bistury*  
return'd; Monsieur *Collot* took a  
*Conductor* with an Elbow towards  
the middle, (and which is com-  
posed of two Branches) and thrust  
the Bill of it into the furrowing  
of the *Catheter*, and when the *Con-  
ductor* was introduc'd into the Blad-  
der, he drew out the *Catheter*, and  
conveigh'd his *Forceps* betwixt the  
Branches of the *Conductor*, to introduce  
'em into the Bladder: And then the  
Con-

*Conductor* being taken out, he con-  
tinu'd the *Operation.*

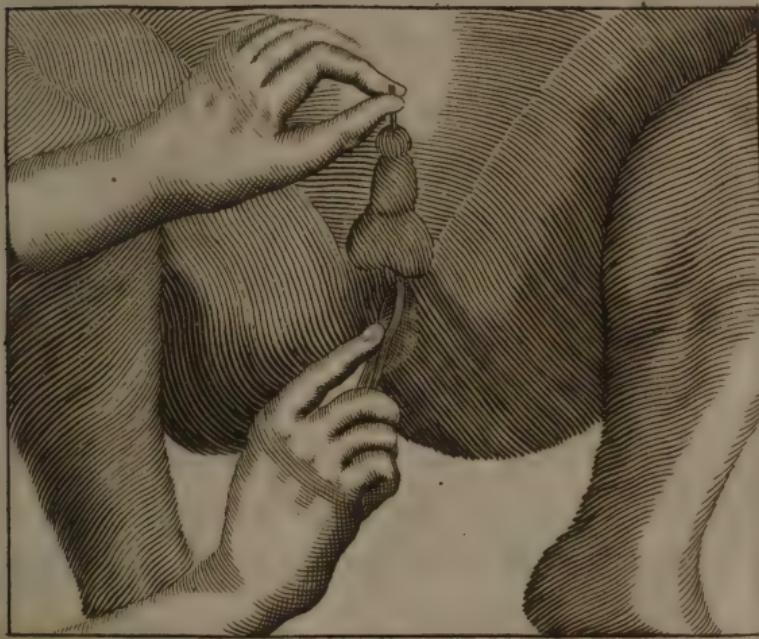
CHAP.  
XIV.

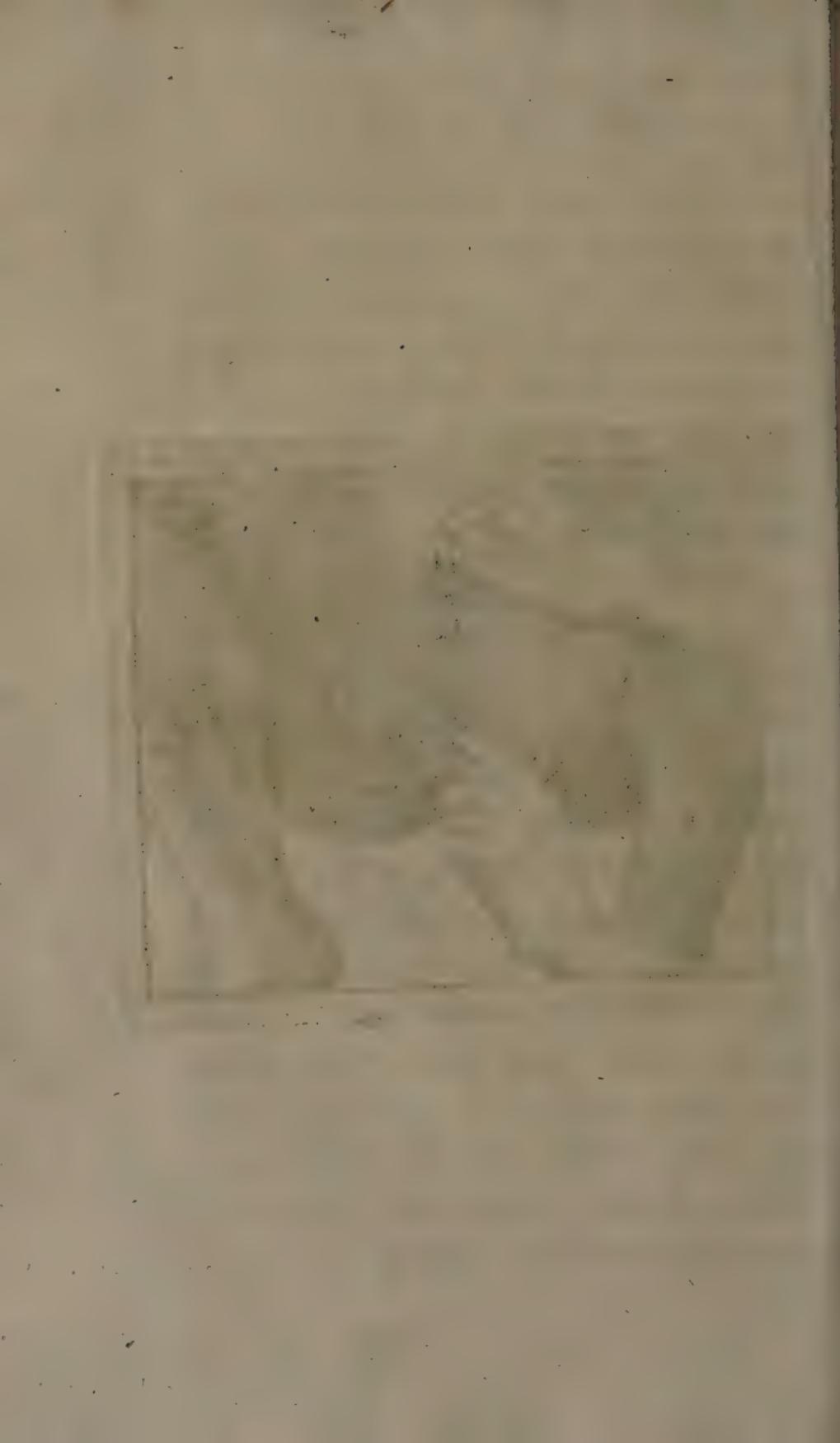
These two ways are very good, and have both their advantages, for when the *Lithotomist* himself holds the *Catheter*, he is sure what place it is in; yet after the *Incision*, it is sometimes hard to find the furrowing because of *Fat*, *Membranes* and *Blood*, that hide it; it is true that after *Incision*, the point of the *Bistury* may be left in the furrowing, and may be held by a Servant whilst the *Lithotomist* slides the *Bill* of the *Conductor* along the *Bistury*, but when a Servant holds the *Catheter*, after that the *Incision* is made, and that the *Lithotomist* hath given back the *Bistury*, as we have just now describ'd, he may put the Nail of his Left-*Thumb* into the Wound, and having found the slit or furrowing of

CHAP. the *Catheter*, thrust therein the *Con-*  
*XIV.* *ductor*, which ought to be hid in  
his Right-hand, so that the Fore-  
finger cover the length of it,  
suffering nothing almost to appear  
but the *Bill*: As soon as the *Bill*  
is in the furrowing, he must take  
the *Catheter* by the Rings in his  
Left-Hand, *as is here represented.*

And now there must be great  
care taken in introducing the *Con-*  
*ductor* into the *Bladder*, for if the  
Patient push hard, he may make  
the *Catheter* to come out, and  
then bad Accidents happen; for  
if one thrust forward the *Con-*  
*ductor*, and afterwards the *Forceps*,  
when they are not right or in  
the *Bladder*, a space will be  
made betwixt the *Urethra* and the  
*Rectum*; to avoid which, The  
*Lithotomist* ought to have an atten-  
tive

*Page 180.*





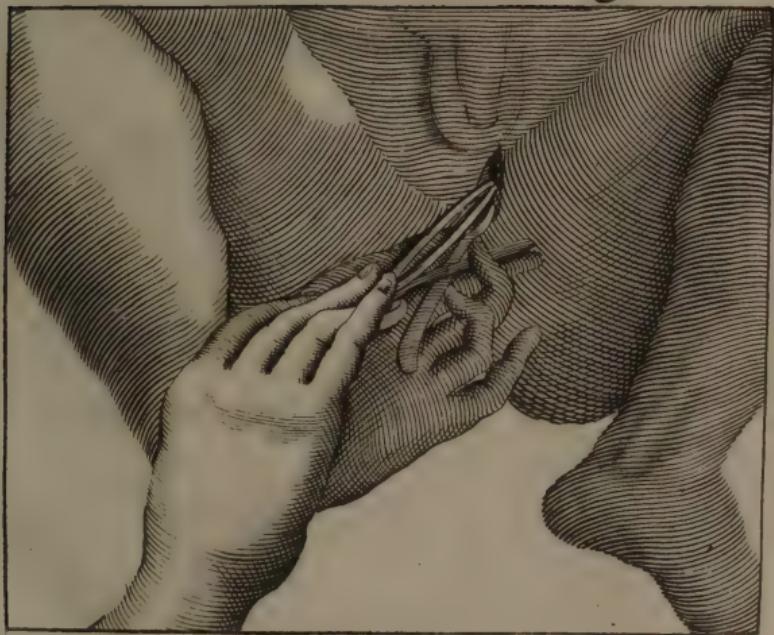
tive Mind, and not talk (remembering that all questions put to him at that time are impertinent) and then having passed the *Bill* of the *Conductor* into the furrowing of the *Catheter*, he must hold them fast, and be sure to keep the *Bill* of the *Conductor* always in, sliding it along and under the furrowing, and thrusting upwards; by which means it will be certainly introduc'd into the Bladder; and then holding it with his Right Hand, the *Catheter* must be disengaged from the *Conductor*, (by turning it to the Left) and gently drawn out of the *Penis*. A certain sign that the *Conductor* is in Bladder, is the Emission of Urine (if there be any in the Bladder) along the *Conductor*. When the *Conductor* is in the Bladder, and the *Catheter* drawn out, it must be held with the Left-hand, and a convenient

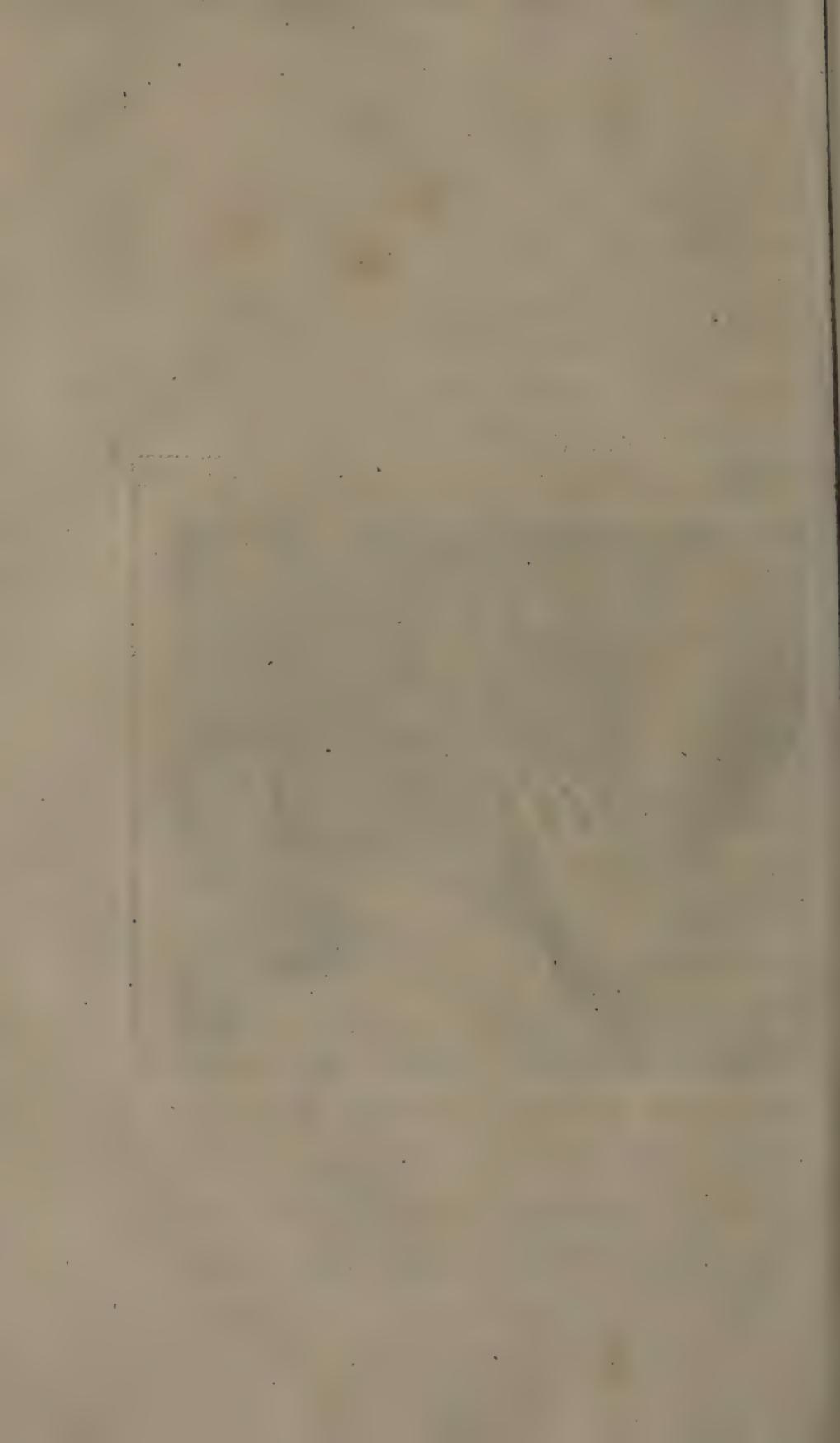
CHAP.  
XIV.

CHAP. pair of *Forceps* be thrust along the  
XIV. same *Conductor* with the Right-  
Hand, *as this Figure shews.*

Tho' the *Conductor* be put into the Bladder, yet it may be forced out again by the Patients strugling, which must be prevented, by causing some to press upon his Shoulders, and others to hold him fast by the Hands and Feet, the *Lithotomist* in the mean time, holding the *Conductor* fast with his Left-hand, must not forget taking great notice, whether any part of it which he has introduc'd, come out again; for if he perceive it does, he must not thrust it forwards, to make it enter again, least a space be made between the *Bladder* and the *Rectum*, nor yet wholly draw it out, because perhaps it may still be in the Bladder; but taking a pair of *Forceps* of an indifferent size, rather

*Page 182.*







*Page 183.*



ther small than great, he must pass them along the *Conductor* without forcing, and if he finds any resistance, the *Conductor* must be drawn out ; after which if he cannot but with difficulty open the *Forceps*, he may be sure that they are not in the Bladder, and then without speaking, they must be taken out, and the *Lithotomist* must take the *Button* with his Right-hand, and lifting up the *Scrotum* with his Left, must pass it into the Wound, turning it towards the *Penis*, and conducting it upwards to the Bladder, as this Figure sheweth.

The *Button* being blunt, hurts not the Parts in passing, and when it is in the Bladder (which may be known, by its being easily to be turned every way) the Stone is softly to be search'd for, by gently jogging and moving the Instrument;

CHAP. ment ; and when it is felt, the  
XIV. *Lithotomist* must take the *Button* in  
his Left-hand, and conduct the  
*Forceps* with his Right, close upon  
the *Button* into the *Bladder*, See  
here the *Figure* of it.

If a crooked pair of *Forceps* be  
introduc'd, the *Bill* being turned  
towards the *Penis*, the *Rings* or  
*Handle* must be rais'd more than  
if the *Forceps* were strait, as may  
be observed by the Difference of  
this *Figure* from that of Page 182 a-  
foregoing, which represents the strait  
*Forceps* introduced upon the *Con-  
ductor*, with the Right-hand bend-  
ing lower and nearer the left.

The crooked *Forceps* are made use  
of, when the Stone is thought to  
incline near to the *Groin*; but  
most commonly the strait *Forceps*  
are sufficient, and both the one  
and

*Page 184.*





and the other ought to be laid upon the Line of the *Button*, so as to touch on both sides.

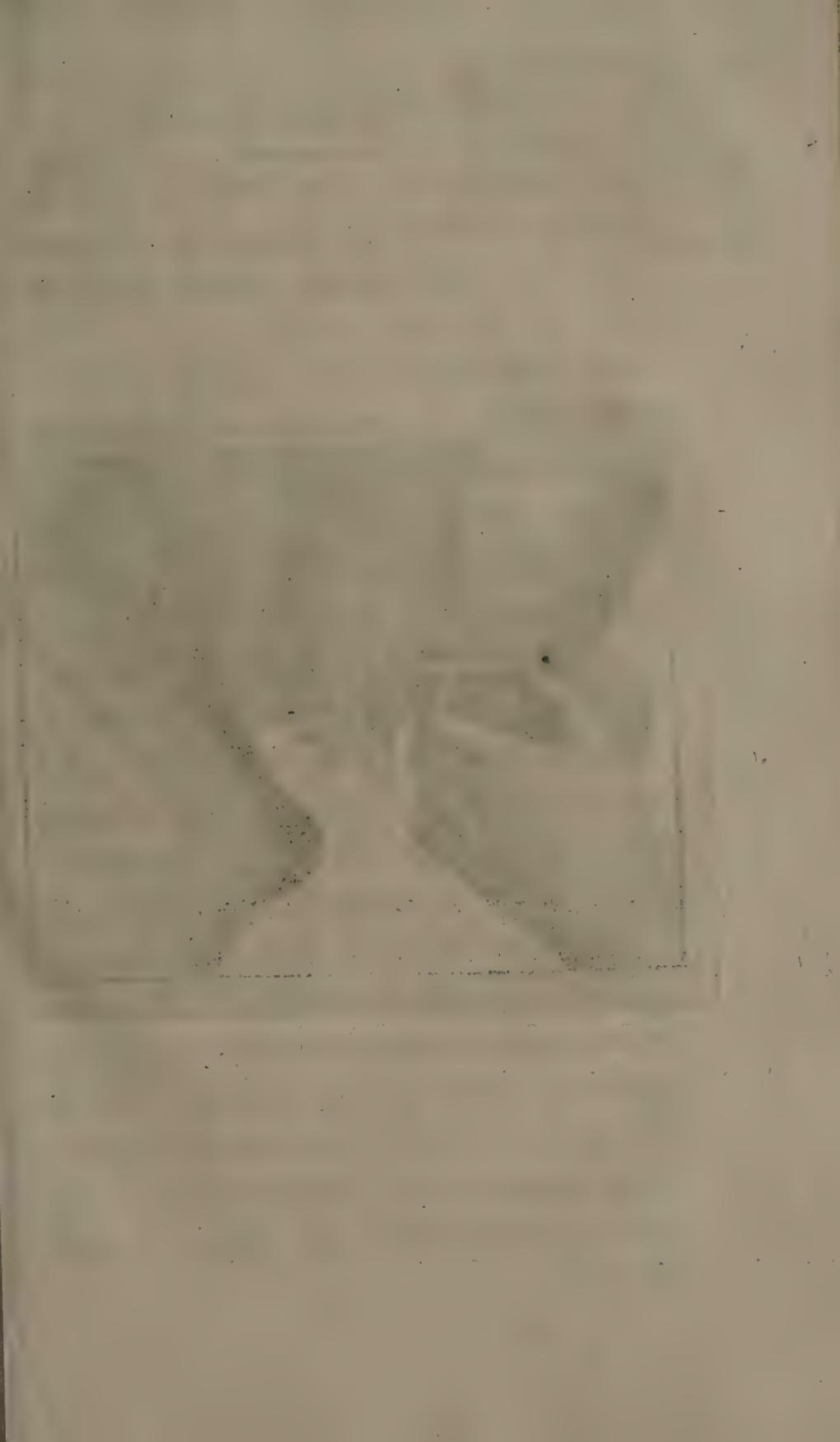
When the *Forceps* are in the Bladder, they must be open'd to dilate the Passage, and then having joined the Rings almost together, they must be gently turn'd and mov'd every way (without closing the Teeth, for fear of offending some part of the Bladder) to search for the Stone ; when the Operation is so far perform'd, the Patient's *Thighs* may be brought a little nearer together, and not be kept at such a distance as they were before.

It is to be observed, that as often as one would change the *Forceps* or introduce them, there is a necessity of making use of the *Button*, except when the *Conductor* is introduced immediately after the *Incision* is made, as before taught.

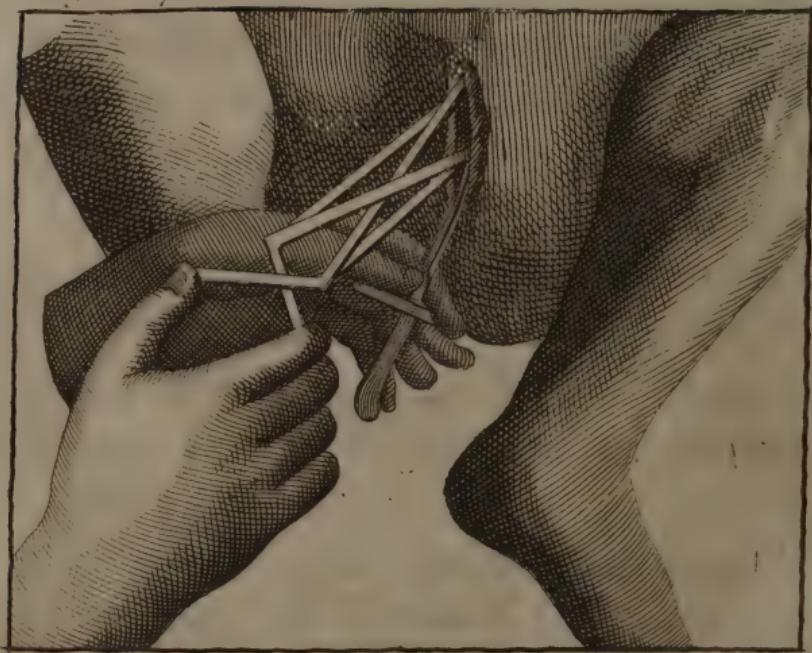
But

**CHAP.** But if after the *Conductor* is drawn  
**XIV.** back, the *Lithotomist* cannot in-  
-troduce the *Button*, it will be ne-  
cessary to take the same furrowed  
*Catheter*, or one somewhat smaller  
or less, and introduce it gently into  
the *Urethra* again, without turning  
of it any way, lest it should come  
out at the *Incision*, and when it is  
passed into the Bladder, the fur-  
rowing of it must be searched for,  
with the Bill of the *Conductor* thro'  
the Wound, that so the *Operation*  
may be more successfully continu-  
ed than before.

When the *Conductor* is in the  
Bladder, if it be fear'd that the  
passage is not wide enough, a  
close *Dilatatory* must be introduced  
along and upon the *Conductor*, and  
without turning it any way, only  
bringing the Branches of the handle  
nearer to one another, the bottom  
of



*Page 187.*



of the *Incision* will be dilated in length, as much or as little as it is thought fit, *in this manner.*

CHAP.  
XIV.

This *Dilatatory* is never us'd unless necessity require it, and after it is taken out, the *Conductor* being left in, the *Lithotomist* must take a close pair of *Forceps*, and slide them into the Bladder to search for the Stone, as before.

And if the Stone is not readily felt, the *Forceps* must be mov'd gently to the Right and Left, up and down, near the *Sphincter* of the *Rectum*, and sometimes must be turned so that one of the *Rings* may be higher than the other, thereby endeavouring to lay hold of the Stone, which may be flat, or lye hid at one side of the Bladder; and when it is found, the *Forceps* must be opened with both

Hands

CHAP. Hands, to gripe and lay hold of it.

XIV. The *Lithotomist* is sometimes so fortunate, as to take good hold of the Stone in a small time; it is easily known whether the Stone is in the *Forceps* or not, because if it is, the *Rings* cannot be made to meet again, and some *hard Matter* will be felt betwixt the Teeth: This is the surest sign, for very small Stones may be taken hold of, about the middle of the *Forceps*, where they are most bent, without hindering the *Rings* from meeting together, but still some hardness will be felt: In the Year 1684 as I was performing the *Lithotomical Operation* upon one Mr. Francis Waldegrave in *Suffolk*, Aged 45, it hap'ned, that having fix'd one large Stone in the *Teeth* of the *Forceps*, and drawing the *Forceps* towards me near the *Wound* (as I com- monly

monly do, because if the Stone shou'd happen to break, I might then prevent the *Fragments* returning into the Cavity of the Bladder again) having my two Fingers in *Ano*, I felt another small Stone which I forced also into the *Forceps* near the middle, and thus extracted both Stones at once from my Patient, who is still alive and well known among the *Quakers*.

I also took two Stones from Captain *Williams*, Keeper of the Goal in *Warwick*, on the 19th of *September* 1698; I extracted the biggest first, and the least afterward, taking hold of it with the middle of the *Forceps*; he is now alive and well.

When the Stone is laid hold of, the *Lithotomist* must not at first pull towards him, but turn the *Forceps* gently to the Right and Left, (holding them with one or both

CHAP.  
XIV.

CHAP. both Hands, according to his convenience) that so he may know if the Stone lye right in the Teeth, and disintangle it from among the Plicatures of the Bladder, after which, he must draw it towards him, but without Violence: Before 'tis drawn out, the Rings of the Forceps must be rais'd and lower'd alternately, to make the Stone slide with greater ease. If the crooked Forceps are us'd, the Bill of them must be turn'd towards the Pubes just at the Passage of bringing it out, and the Rings be very near the Penis; and that one may not be mistaken and turn the Bill downwards, it would be necessary to put a mark upon one of the Rings of the Forceps.

When the Stone is in the Forceps, especial care is to be had, not to turn it quite round, because if the Stone be big or uneven, it will

much

much Contuse the parts of the Blad- CHAP.  
der : If the Stone be soft, it breaks XIV.  
and moulders, and the *Forceps* easily  
shut, but yet one feels as it were a  
heap of Sand, and then the Rings  
are not to be brought wholly to-  
gether, because there would but a  
small matter of *Gravel* be drawn  
out, and the parts of the Bladder  
might be hurt.

The *Forceps* with what is be-  
twixt the Teeth, must be drawn  
out, and this is to be reiterated,  
conducting the *Forceps* upon the  
*Button*, as often as shall be judged  
necessary ; and then a *Tent* or  
*Pipe* is to be introduced, as shall  
be shew'd in the following Chap-  
ter.

When the *Lithotomist* judges the  
Stone to be flat, and of the shape  
of an Almond, he may endeavour  
to make one of the Teeth of the  
*Forceps*

CHAP. Forceps slide under it, and the o-  
XIV. ther above; though commonly the  
Stones are taken side-ways, and  
when it is taken hold of, he is to  
turn the *Forceps* again, so that the  
thickness of the Stone may an-  
swer to the length of the *Incision*.

Sometimes a Stone of the shape  
of a large Hens Egg, is taken hold  
of by its two ends, which may  
be guess'd by the great distance  
then is observed to be betwixt the  
*Rings* of the *Forceps*, nay one  
may see it when the Stone is  
near the Passage; and then the  
*Forceps* must be thrust back into  
the Bladder, and be a little open'd  
that the Stone may lie loose in 'em,  
and then it will turn without fail,  
and may be held fast by its thick-  
ness side-ways, and thereby the  
Passage will be less dilated in  
drawing it out: If the *Lithotomist*  
can't

can't hold the *Forceps* fast enough CHAP.  
he may wrap the *Rings* in a XIV.  
Napkin that his Hands may not  
slip.

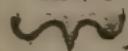
If the Stone adheres and sticks  
very close, it is better to delay Ex-  
tracting it for some time, because  
*Suppuration* contributes to the Sepa-  
ration thereof.

When it is excessively big, it is  
better to let it alone than to *Expose*  
the Patient to evident Death, es-  
pecially if Age and other Circum-  
stances are contrary to the *Op-  
eration*.

*Fabritius Hildanus*, in his Treatise  
*de Lithotomia Vesicæ*, P. M. 114. has  
some Figures (which he borrow'd  
of *Petrus Francus*) of *Forceps* that are  
very convenient to break the Stone  
when it is too large to be extract-  
ed; and *Beverovicus*, my Country-  
man, advises to break a great Stone

CHAP. with *Forceps*, whose Teeth resemble  
XIV. the Teeth of a great Saw.  
The foremention'd *Hildanus*, when he did not break the Stone, made use of a long Silver Tent or Pipe, perforated and open at the end, to hinder the Stone from falling on the *Sphincter*, that so the Patient might make Water.

When all the Stones have been Extracted in an *Operation*, it is not needful to introduce a Tent or Pipe: Nevertheless there are some *Lithotomist*, who always use them to void Clots of congealed Blood. I do not use them because Blood will make its way *per Penem*, or by the Wound: But a Tent may sometimes be useful, when there is an *Ulcer* in the Bladder, that *Injections* may be the more conveniently made into it.



## C H A P. XV.

Of the Difficulties happening in this Operation.

**A**N Operation is call'd hard and laborious, when by a skillful Man it is not perform'd in a short time. In such a case the Patient is not to be held in Pain until the Stone or all its parts be extracted. Sometimes it so stops the Passage, that the *Conductor* or *For-  
ceps* cannot enter without great difficulty ; and therefore an Expert *Lithotomist* must not scruple to take out his *Instruments*, and with the *Button* or his *Finger* thrust back the Stone into the Bladder ; and afterwards make use of the *Button*

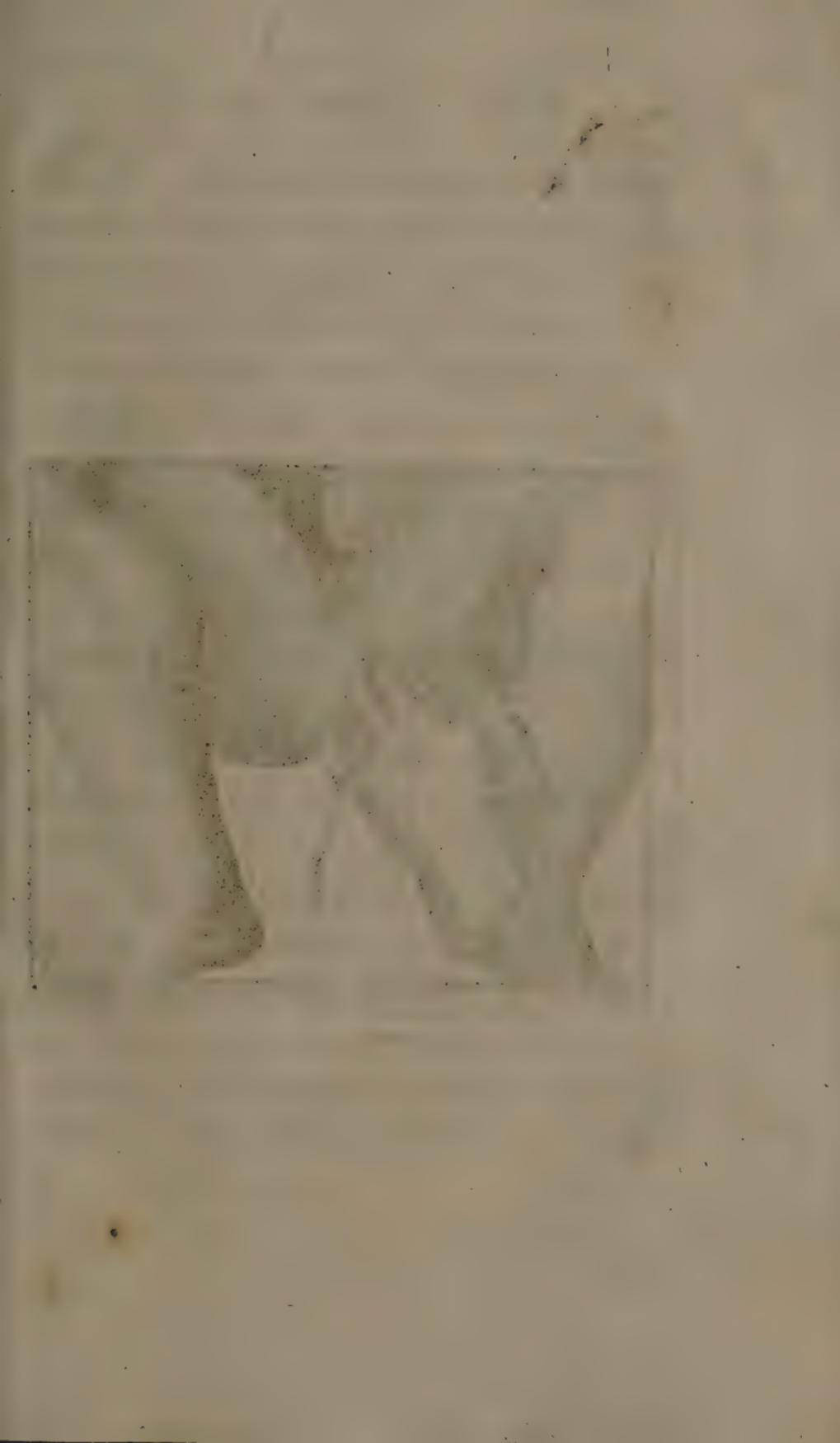
O 2 . . . . and

**CHAP.** and *Forceps* to continue the *Opera-*  
**XV.** *tion.*

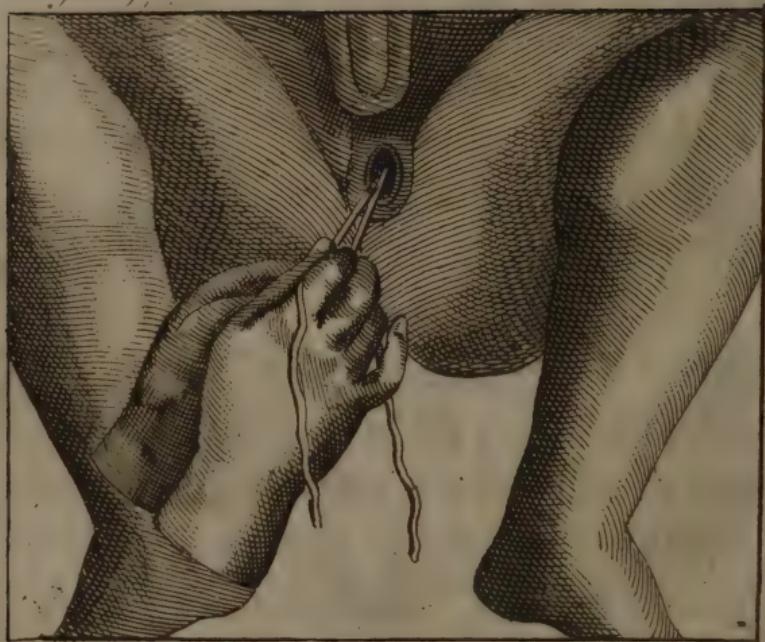
It many times happens, that after the Stone hath been laid hold of, it escapes and mounts up again, because the *Forceps* give way, or the *Teeth* are not good, or the Stone is monst'rous in respect to the Passage, or breaks when it is held too strait, or because it so adheres to the Bladder, that it cannot be easily Extracted.

These Circumstances are to be observ'd very exactly, and the *Lithotomist* ought not to be more careful in *Operating*, than in considering the Strength and Age of the Patient, with the time that he has been under the *Operation*, keeping him rather too short a time than too long, lest the Patient being made to endure too much be surpriz'd by Death:

But



*Page 197.*



But if, after the *Operation* hath been methodically carried on, nothing is Extracted; because there was no Stone in the Bladder, or that the Stone is small, or if Fragments remain, he may take the *Button* with a *Scoop*, by the small or middle, and introduce the *Scoop* or *Spoon* into the Wound, and so endeavour to Extract whatever he finds, and this having been two or three times reiterated, he ought to make use of a *Cannula* proportionable to the Subject, and mounted according to Art.

For introducing it, he may make use of the *Button*, put into the *Incision*, and having dipp'd the end of the *Cannula*, or *Tent*, in *Oyl*, he may conduct it along the *Button* even to the Bladder, *in this manner*.

CHAP. XV. The ends of the piece of Linnen wherewith the Tent is mounted, may be ty'd to the *Girdle* that is made with the *Bandage*, one before, and the other behind. Next Day or some Days after, the *Tent* is to be taken out, and if there remain still somewhat in the Bladder, the *Lithotomist* must endeavour with the *Hamulus* or *Hook*, or with the *Scoop* of the *Button*, or with the *Forceps* conducted by the *Button*, to extract it while the Patient lies a Bed; or otherwise, he may be placed upon a Servant's Lap, or upon a Table as at first, yet without using of *Ligatures* or *Scarfs*, because then the Patient being weak, it would put him into too great fear.

When the *Fragments* are but moderately big, they may be Extracted a Bed; the *Tent* must be left in, until the *Lithotomist* is certain, that there

there is nothing more remaining CHAP.  
to be Extracted, which may be XV.  
known, if he observes what came  
out during the *Operation*, or after-  
wards with the *Medicines*.

After the *Tent* is taken out, a *Catheter* crooked at the end may be introduced, or a big *Wire* may be put through the Cavity of the *Tent* without taking it out; and then by several little joggs or motions, search may be made gently without Pain; a *Feather* may also be us'd to clear the *Tent* of *Blood*, *Slime*, or *Purulent Matter* that is form'd in the Bladder. The *Injection* of Barley-Water (or *Mucilag. Sem. Cydon. Psyllii cum Aq. Rosar. Solan. An. q. s. in quibus dis-* solv. *Trochis. Alb. Rhas. M. F. Injectio*) is proper to be us'd, and after the first Day the *Lithotomist*

O 4 may

CHAP. may gently press the *Belly* with his  
XVI. Hand in the time of Dressing.

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## CHAP. XVI.

### *Of the Symptoms of Lithotomy.*

THE Symptoms are either Comitant or Subsequent Accidents that accompany the Operation, and are *Hemorrhage* or *Bleeding*, the length of time, which makes it to be called laborious, the Bruising of the Parts, or Breaking of the Stone, the difficulty of Extracting it, or the impossibility of it. But with such a Case I met but once in 40 Years. The Patient was one Colonel *Alford*, a resolute Gentleman, the Stone proved intractible : Mr. *Sutor* the *Lithotomist* was

was equally concerned with me, CHAP.  
XVI. we made the Wound as large and the *Extension* or *Dilatation* as wide as the Parts would bear, we had the best of *Surgeons* present, of which Mr. *Layfield*, who is now alive was one; there were also *Physicians* of Note, the expert Dr. *Gibbons* came in afterwards, to whom I am much obliged; in short after we had done what we could, we were forced to leave off, and the Patient died that Night, he was open'd afterward, and the Stone was Pyramidal and Monst'rous; it is kept in the Family.

Sometimes we meet with such a number of Fragments as cannot be Extracted, because of their bigness, or weakness of the Patient: Sometimes also nothing is found in the Bladder.

If

**CHAP.****XVI.**

If great Care be not taken, a Lithotomist may possibly by thrusting the Catheter, pierce through the Bladder.

The Symptoms, that commonly follow the Lithotomical Operation, are a painful Tension of the Abdomen, Retention of Urine, Watchings, Inflammation of the Parts affected, Vomiting, Diarrhoea, Worms, Ecchymoses, Fluxions, Abscesses, Excoriations, Itchings, Ulcers, Fevers, Consumptions, Convulsions, Delirium, &c.

But these Symptoms do not happen to all Persons, and but very seldom all of them to any, some Patients having very few, and others many; according to the Circumstance and Difficulty of the Operation; &c.

The Tension of the Abdomen, is caus'd by an Inflammation that attracts a Fluxion when the Ligaments, that

that keep up the Bladder, are strained: The Retention of Urine is occasion'd by Coagulated Blood, or Inflammation of the Parts: A Diarrhoea or Loosness and Worms in Children, proceed from abundance of Phlegm and putrid Humours.

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An *Eccymosis* is an effect of Extravasated Blood: An *Abscess* is produced by a Collection and Continuance of Humors in the Intercstices of the Parts: A great and long *Suppuration*, by the quantity of the Matter, whereof the *Abscess* is formed, or by an *Ulceration* in the *Kidneys*, or the *Liquefaction* of the Humors of the whole Body, of which, part *Suppurate*, whilst the rest is dispersed and expell'd by *Transpiration*, or a *Looseness*, which at the same time often causes a *Maraasmus* or Extenuation of the whole Body: An *Ulcer* of the Bladder

**CHAP.** *der* is caus'd by *Contusion*, and Sup-  
**XVI.** puration of its Parts, which excites  
the running of *Purulent Matter* by  
the *Penis*, or *Wound*: *Fungous Carno-*  
*sities* by superfluity of ill Blood:  
*Excoriations* and *Itching*, are the effects  
of the sharpness of *Urine*, or too  
strait Bandage: *Putrefaction* of  
the *Ulcer*, comes from Corruption of  
the *Humors*, and the *Air*, &c.

There are other *Accidents* occa-  
sion'd by Bruising or Dilacerating  
the *Nerves*, (which pass through  
the holes of the *Os Sacrum* and are  
distributed and Common to the  
*Sphincters* of the *Bladder* and *Anus*)  
by the *Forceps*, or by the Asperities  
of a Great and Rough Stone, es-  
pecially when the *Operation* hath  
been hard and laborious.

There sometimes happens after  
the *Operation*, a *Syncope* or *Fainting*,  
which is occasioned by a great  
Flux

Flux of *Blood* and the loss of *Spirits*. *Convulsions* happen either by *Vomiting*, *Diarrhæa*, or *Hemorrhage*, which hinder the *Nerves* from receiving a sufficient quantity of *Spiritus*: A *Delirium* supervenes, when there has been so great a Dissipation of Animal Spirits, that the Brain retains not enough for it self, or for supplying the whole *Body* with a quantity sufficient for performing the *Functions* of its several parts.

These *Symptoms* have their *Causes*, and *Diagnostic* and *Prognostic Signs*: Some are the Cause of the Signs of others, and all the *Symptoms* in general are caus'd by *Pain*, *Fever*, *Hemorrhage*, *Contusion* and *Dilaceration* of the *Parts*.

The *Prognostics* are taken from the time, the Violence, and the State of the Patient, in which the Accidents happen. The

CHAP.  
XVI.

CHAP. The Symptoms that appear at first,  
XVI. are not so dangerous, as those  
that last long or happen in a  
*Cacochymic Body*, which then are more  
to be feared.

A *Lithotomist* who is expert in  
performing the *Operation*, will avoid  
many Concomitant Symptoms.

There are some Blades, who  
have the Knack of feigning that  
they have extracted a Stone, and  
Convey one, though they have  
found none: One Mr. *Morion*, a  
*French Merchant*, told me about  
34 or 35 Years ago, when I was  
but newly come to *England*, that  
such a Spark was caught in *Paris*,  
near the very door of a Patient  
whom he had served that trick,  
and was Executed quickly after by  
order of the *French King*.

The Symptoms that follow the  
*Operation* are (either by themselves  
or by their Consequencies) to be  
considered in another Chapter,

apart, or many together according to their Nature) to be corrected and asswaged by various and proper Medicines.

The first care must be to Mitigate Pain by *Anodines*, *Imbrocations* and *Fomentations*: A *Hemorrhage* is sometimes to be feared, wherefore I always leave a careful Servant, to apply *Astringent Topicks* with *Pledgets* and *Compresses* dipt in *Acetum & Aqua commixt.* and to make a good *Ligature* to keep on the Dressing for 24 Hours, except there should be a new Eruption of Blood, for then recourse must be had to fresh *Astringents, &c.*

*Of the Method of Curing those that  
are Cutt, and removing their Symp-  
toms.*

**T**HE Looseness and Diarrhæa may be cured by these or the like Medicines.

R Rhabarb. pulv. Confect. Fracastor an. 3β M. F. Bolus sumat. hora somni. Superbib. haust. seq.

R Aq. lact. alexiter, Cinamon. hord. an. 3i. aq. Cinamon. fort. 3ii. Syrup. de Cichor. cum Rhabar. 3iii. M. F. Haustus.

If it be a Child the following will be serviceable.

R Rhabarb. 3β. Aq. Cerasor. Nigror. 3ii. F. Infusio detur. Cochleatim.

And afterwards give this Decoction.

R C.C.C.

Rx C.C.C. ʒβ. Nuc. Moschat. Con- CHAP.  
 tus. ʒβ. Coq. in aq. fontan. q. s. sub XVII.  
 finem add. Crust. Panis albiss. ʒiii.  
 Colatur. ibi. add. aq. Stephan. ʒx.  
 Sachar. Cand. alb. q. s. M. F. De-  
 coctum; of which let the Patient  
 Drink often.

If the Looseness continues, add.  
 Laudan. liquid. gut. ii. ad. iii.  
 more or less to every Draught of  
 the Decoction Album, and continue  
 it till the Looseness leaves the Pa-  
 tient.

To Cure Worms prescribe as  
 follows.

Rx C.C. Corallin. an. ʒi. Sem. Ze-  
 doar. pulv. ad Vermes. an. ʒii. Sal.  
 absinth. oculor. cancr. ʒβ. M. F. Pulv.  
 № viii. of which let the Patient take  
 one twice a Day in any proper  
 Vehicle.

CHAP. Sometimes some few Grains of  
XVII. *Calomel* may be given, which will  
totally destroy the Worms.

The *Ecchymosis* may be taken off,  
by applying *Spiritus Vini*, *Theriaca*  
*Andromach.* commixt. or *Spiritus*  
*Vini Camphorat.* or *Emplastr. de Cymino*,  
putting fresh *Sem. Cymin.* stamp'd  
with a little *Ol. Rosar.* and laid up-  
on the *Plaister*, but not spread with  
an hot *Spatula*.

Fluxions and moderate Tumors are  
to be dissipated by *Resolutives*, and  
*discusting Emplaisters*, *Comfortative*  
*Cataplasms* and *Anodynys*, according  
to the Degrees of the Hurt and the  
Rules of Art.

*Abscesses* are commonly formed  
above the *Incision*, and many times  
pressing the head of the *Tumor* with  
one Finger, and the sides with the  
others, the *Purulent Matter* will be  
evacuated by the *Wound*; but if it  
be

be perceiv'd, that the Skin is very thin, and the *Matter* ready to burst forth, they must then be open'd to the very bottom of the *Sinus*, and the Cure be performed according to Art.

CHAP.  
XVII.  
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Deterotive Injections must be us'd to *Mundifie* and cleanse the Bladder, and *Emulsions* given to the Patient, that the *Purulent Matter* may the more easily be Evacuated.

Before we treat of the Cure of *Fevers* that may happen after the *Operation*, it will be necessary to say something about dressing the Wound; for that being carefully done, proves very material in abating a *Fever* which here is *Syntomatical* only.

The first thing therefore to be observ'd after the *Lithotomist* has successfully perform'd the *Operation* (whilst the Patient is still in the

CHAP. Posture, and the Assistants are
XVII. with all Expedition clearing the
Ligatures) is, either to inject into
the Wound proper warm *Mun-*
difying Medicines, or to apply
Flannel-stuffs, dipt into, and
gently wrung out of, such Re-
medies made hot, as the *Lithotomist*
thinks most proper to prevent or
abate a violent *Inflammation* and
afterwards a large Plegdet, on which
is spread proper Astringents, must
be put upon the *Incision*, applying
over that a *Compress* of Linnen,
four or more times doubl'd, and
about four Fingers in length and
breadth, which being gently held
on by a Man with one of his
Hands, he must with his other
Arm, take the Patient about the
Body (the *Ligatures* being clear'd)
and with assistance of others carry
him to Bed, except the *Lithotomist*
thinks

thinks it necessary to have him set in a warm *Stiptic-bath*, which I use to Children (when the Stone is extracted by *Apparatu Minori*, without breaking or bruising the Parts) of whom I have Cured Scores, by the first *Intention*.

When the Patient is carried to Bed, a *Truss* with four Heads, made suitable to the Patient, must be put about him near his Hips, that so the two superior Heads or Straps, call'd Twins, may serve for a Girdle, letting the other two Heads hang down, that so after the Wound is drest they may cross one another just upon the *Incision*, (without stopping the *Anus*) to keep on the Medicines, &c. by a slight Compression, after which they must be tied to the Girdle near the Groin.

CHAP. XVII. But before the two superior Straps of the *Truss* are tied together to serve for a Girdle, *Imbrocation* must be made upon the *Belly* and *Scrotum, &c.* with warm *Ol. Rosar.* & *Ol. Chamomil.* to prevent or Cure the *Tension* which is painful to those Parts; an Astringent Plaister must also be apply'd to the *Belly*, and over that a *Belly-Cloath*, soaked in warm *Oxycrat*, and then the two superior or upper Straps of the *Truss* must be tied together towards the Patient's Right-side, the one of them passing under the *Collar*; and after that, the *Compress* and *Pledget*, which were put upon the *Wound* immediately after the *Operation*, must be taken off, and if there be a *Hemorrhage*, *Astringent-Powders* and *Pledgets* are to be applied; if there be no *Hemorrhage*, an indifferent thick *Pledget* covered with *Astringents*.

gents as before, must be put upon the *Wound*, and over it a Triangular Plaister covered with *Astringents*, and then a small square *Compress* dipp'd in warm *Oxycrat*, must be put upon that, and all be kept on by the ends of the *Truss*, exactly crossing one another, and tied artfully to the Girdle as above-mention'd; and during the whole time that the Bandage is making, *Belly-Cloaths* dipp'd in *Oxycrat* must be applied to the Patient.

Great care must be had that the ends of the *Bandage*, or *Truss*, nicely keep the dressing upon the *Wound*, the *Scrotum* also ought to be kept up with a proper *Truss*, and the *Thighs* must be made fast and kept at but a little distance from one another, with a Garter or Thigh-band tied just above the

CHAP. Knees, with the Knot on the out-
XVII. side of the Thighs.

If it be a Woman from whom a Stone is Extracted, whether it be by *Dilatation* (which I always found to be the best way) or *Incision*, the same Dressing must be put upon the Belly as to Men (Bathing also with *Astringents* in *Semicupio*,) and the Pledget covered with *Astringents* must be put upon the *Orifice* of the *Urethra*, and over that, a *Compress*, which must be kept on by the *Truss* like a double *T*, of which a Girdle must be made as with the other *Truss*, and the two Ends or Tails of it passing betwixt the Thighs, and crossing upon the Dressing, will hold it fast, and press it as little as one pleases. When the Patient has a mind *Emit-tendi Urinas*, the Bandage must be taken off: The Female Sex is not subject to near so many Accidents

as the Male, and therefore are much sooner cured.

CHAP.
XVII.

In Men the first Dressing may be removed within 12 Hours after Application; and every time the Dressing is renew'd, *Imbrocation* with the same *Astringent*, and the same Belly-Cloaths, must be us'd at least for four or five Days; if the Belly be swell'd or pain'd *Fomentations* with *Vini Auster. in quo Fol. Rosar. Rub. incoct. fuerint.* may be successfully us'd, and sometimes it is necessary they should be reiterated four or five times in a Day.

The Wound may be dress'd as the *Lithotomist* sees convenient with *Linimentum Arcæi* either by its self, or with one Dram of *Bals. Sulph.* added to every Ounce of it, which ought to be half melted, to make it Penetrate the more, applying it with a Feather, and as gently

CHAP. ly as may be, introducing it to the
XVII. very bottom of the Wound, and
then a little *Pledget* dipp'd in the
same *Liniment* may be applied upon
the Lips of it, and a *Triangular*
Plaister, soaked in warm *Ol. Rosar.*
using a *Compress* and *Truss*, moisten'd
with warm *Oxycrat*, and a clean
dry *Bandage* as at first: For the
following Days the Patient may be
dress'd twice every 24 Hours, duly
changing the Dressings, except that
of the Belly, which may serve for
two Days, and every now and
then the Patient must be made
dry; which ought particularly to
be done, when fresh Dressings are
apply'd, keeping the *Wound* clean
to avoid a *Gangrene*: It must be
dress'd with all speed and diligence,
and kept open as little as may be,
and a Fire must always be kept in
the

the Room to correct the badnes
or coldness of the Air.

CHAP.
XVII.

After five or six Days there will be no need of *Oxycrat*, nor *Astringents*, but only of a dry Belly-Cloath ; and in the *Incision* three or four drops of *Linimentum Arcæi* introduc'd with a Feather, and a flat *Pledget* dip'd in the same upon the Lips of the *Wound*. *Balsamum Peruvianum* and *Copavæ* are also Sovereign Remedies for *Agglutination* ; that of *Copavæ* is good from the beginning to the very end. Some make use of equal parts of *Linimentum Arcæi* and *Olium Ovarium*.

The truly Honest and Ingenious Surgeon, Mr. *Page*, when alive furnish'd me with the following *Digestive*, which Contracts large Wounds of this Nature strangely :
Rx *Ung.* *e Gumm.* *Elemn.* *3i.* *Tereb.*
Venet. *3iii.* *Ol. Hypericon.* *3ii.* *pulv.*
Myrrh.

CHAP. Myrrb. Aloes an. 3*i.* Mastich. 3*ii.* Sang.
XVII Dracon. Bol. Armen. an. 3*iii.* Spir. Vin.
Rectif. q. s. M. F. Ung.

There are several other Compositions which may be us'd as the *Lithotomist* sees proper: In Hospitals they have the Green Balsam which is made of *Ol. Lini Tereb.* *Venet.* and *Virid. Æris*, which also is good. The success that attends them is alike, provided the *Operation* has been fortunate, and no bad accidents supervene.

When the Liniment, or Ointment has been introduc'd with a Feather, put on a *Pledget*, and a *Plaister*, and a dry *Truss* to bear up the *Scrotum*, with a *Compress* and *Bandage* upon the Wound, as has been described before.

After the first Days are over, the *Bandage* upon the Wound may be press'd, a little harder than in the begin-

beginning, and it is fit to alter the CHAP.
posture of the Patient, laying him XVII.
on his Right or Left-side, with a
Pillow under his Buttocks.

The Lips of the Wound must be kept equally rais'd. by help of little narrow *Compresses*, that the *Bottom* may Consolidate, before the *Cicatrice* be made, when it is certain that the *Bottom* is consolidated, then *Desiccatives* must be us'd, and when the Patient has occasion to make Water in his Urinal, he may with his Hand press a little upon the Dressing, that he may do it the more freely. If any *Fungus* grows, it must be kept down with *Lap.* *Vitriol.* *Lap.* *Infernal.* *Caustic.* *Lunar.* *Alumen.* *ust.* or any other as the *Lithotomist* shall think fit to apply, or order to be applied. And thus some are perfectly Cur'd in 30, some in 40 Days; I have had

CHAP. had Children walk about the Room
XVII. in 12 Days.

'Tis Prudence in a *Lithotomist* to observe the Alterations that happen to the Patient, and to change his Method of Cure *pro re nata* as well by *Diet*, as by *Chirurgery*, and *Pharmacy*. In *Diet* until the 7th or 8th Day he must Abstain from Wine, unless he be very weak; he must drink Almond Milk, Ptisane, and Small-Beer, and Eat Broaths, Watergruel, Panadoe, &c. ordering his Food to be made stronger gradually; *Chirurgery* is necessary when Letting of Blood is to be Reiterated, *Abscesses* and *Sinus's* to be open'd, places where there is a disposition to *Putrefaction* to be Scarified; sometimes *Scissars* are made use of to Clip off Membranes and other parts, that are wholly corrupted: And the Medicines are changed

changed to discuss *Tumors* or ripen ^{CHAP.} *Abscesses*: Ulcers of the *Scrotum* ^{XVII.} and the Bladder must be cleansed by *Injections* and other Medicines that resist *Putrefaction* and *Mortification*. Extraordinary *Symptoms* sometimes appear one before another, and sometimes many together making a Complication.

I come now to speak of *Fevers* which often happen after Extracting the Stone, and which are commonly cured by Letting of Blood, which is good if the Patient has not lost much in the *Operation*, and has Strength to bear it. It may be askt how comes it to pass that sometimes a little Intemperance gives rise to the most Dreadful and Fatal *Symptoms*, and *Fevers*, when perhaps at another time, the greatest Excesses go unpunished without?

Men

CHAP. Men differ much in their Meats
XVII. and Drinks; some always Indulging
themselves in Luxury and Excesses,
esteem nothing too Rare, too
Rich, or too Dear, to Pamper their
Bodies, and to please their Palates,
and hence will have *Fever*s; whilst
others, bending under a loathed Po-
verty, are necessitated to satisfie
their craving Stomachs, or thirsty
Throats, with what their wretched
conditions can acquire; and from
the badness thereof will have *Fever*,
yet supposing the state of Health
and Sickness to be the same, it will
be no easie Undertaking to distin-
guish between the Blood of the
Voluptuous Beaux and the Miser-
able Peasant.

The very Air that is so Essenti-
ally necessary for Life, that with-
out it we can neither Live, Move,
or have a Being, has sometimes
very

very different effects upon Hu-
mane Bodies, and yet has no per-
ceived change in its Sensible Quali-
ties ; as fatally appears when it is
miserably experienced to be the
unhappy Medium that conveys
those Poisonous Particles into the
Veins of Men, which like the de-
stroying Angels kills Thousands by
Pestilential Fevers. And yet there
is no Sense so exquisitely nice that
can distinguish them, nor no skill
to separate or divide them, nor no
Judgment so strong, nor Reason
so profound as to demonstrate how
these are made, or from whence
derived : Or how directly they
exert their dreadful, altho so very
differing effects.

Restlessness is conquer'd by cool-
ing Decoctions, Pacific Emulsions, and
Paregoric mixtures, after the first
Days.

Q

The

CHAP.
XVII.

CHAP. The Inflammation of the parts after
XVII. Suppuration, is extinguished by the Ceratum Galen, or by Nutritum, which is an incomparable Ointment as well in that, as in many other cases: Fragments and small Stones are voided with the Urine, and by the Injection of warm Barley Water, or they are extracted with the Hamulus or Hook, Forceps or Scoop of the Button. The too great retention of Urine, is cured by passing the Womans Catheter into the Wound, and then by a Tent or Pipe left in it for some Days; Gripings and Looseness are stopp'd, by Anodyn Glysters, by Liquid Laud. cum Spirit. Sulphur. commixt. or by drinking of proper Ptisane, &c.

If Excoriations are spread, the Patient may be drest without a Truss, only putting an Adhesive Plaister over the Medicines which are laid to the Wound. The

The same thing is to be practis'd CHAP.
when the *Scrotum* or *Testes* are much XVII.
swell'd and in Pain, and on that
occasion *Anodyn* and *Emollient Cata-*
plasms, &c. spread upon Linnen-
Cloath, cut in the shape of the
Plaister for the *Scrotum*, are to be
made use of, with a *Bandage* or
Suspensory, which must be apply'd
as in other Distempers of the *Scro-*
tum or *Testes*.

Persons that are Cut for the Stone, when they are kept lying a great while in Bed, are subject to other Accidents; some *Lithotomists* keep their Patients upon their backs all the while, till their Wounds are cur'd, this is the way Dr. *Cyprianus* and the *Parisian Lithotomists* order their Patients, which I do not, because by experience I have found, that the best way after they are Dress'd, to keep the *Urine*

CHAP. from the Wound, is to give leave
XVII. to the Patients to lie either on their
Right or Left side, with a Pillow
under that side they lye on, and
thus they are cured sooner.

Fainting, Convulsions, and Vomiting
go often Hand in Hand, but
the last appears more frequently
than the others. The *Vomiting* is
Cured according to the various In-
dications, sometimes the Stomach
may be ill it self, then we use
Stomachics: Sometimes there is a
Vomiting per Consensum partium which
must be Cured quite in another
manner, thus as the Causes differ,
the *Physician* must alter his method:
If the Stomach be disordered *Ri-*
verius his Medicine *Cum sale absinthii*
may do well, or a *Julep* with *aq. Menth.*
Tinctur. Cinamon. and Spir. Mastick.
Sometimes *Vomiting* may be *Critical*,
and then it must be promoted, some-
times

times Symptomatical, from Inflammations, Itching, and from Ulcers ; which are to be cured, some with Theriac. and Sal. Viperarum, some with Confet. Alkermes and Cardiacs, some by Bleeding, &c.

When Vomiting is stopt, Convulsions commonly Cease, and then Fainting may be cured by Succulent Nutriment, as good Gellies, strong Broths, new laid Eggs, &c. which will strengthen the Patient and Fortifie the Spirits.

The Wound, if not skilfully managed, may become foul, and by too great Suppuration may at last be turned into a Sordid Ulcer, and with the Acrimony of Urine, grow Mordicant and Biting : Such Ulcers are never without Inflammation, Itching, and Excoriation ; and sometimes are difficult to Cure, but they

Q 3 very

CHAP. very seldom happen to the Patient
XVIII. if the *Lithotomist* be Skillfull.

Deliriums are the last, and are commonly forerunners of Death.

CHAP. XVIII.

*Of the Cure of the Gravel and Stone
(as far as it will admit) without
Cutting.*

Hitherto for the Theory of this dreadful Distemper, we have consider'd the several Causes, Signs, and Differences; the several ways of Cutting for the Stone or *Lithotomy*, and Symptoms thereof, and proceed now to the Practice, for its Cure and Prevention, and herein, these things are requir'd.

That

That the *Causes* occasioning it,
be prevented, and thereby its growth
and increase hindered.

And that when it is grown in the Body (I speak now of Gravel and small Stones) it may be remov'd, and the Pains ensuing be appeas'd, and the usual difficulty of Urine redress'd.

No Distemper requires more the Attention and Assiduity of a Skillfull and Expert Physician than this ; for all the *Specifics*, as the *Aselli Minores*, *Passer Troglodytes*, or *Hedge Sparrow*, *wild Pigeons*, *Goats-Milk*, *Semen dauci*, *Garlick*, *Asparagus*, *Terebinthina*, *Balsamus Juniperinus*, and an Hundred others that have done good to many, when well applied, are of little use in the Hands of the Ignorant : But besides the *Compositions* that Learned Men have Prescribed, were there not the great-

CHAP. est Judgment and Skill required in
XVIII. giving Medicines for this Disease,
every one would be his own Phy-
sician, and fall either with Daffy's-
Elixir, *Tippings-Water*, or Rogers's
Pouder, &c. and these are indeed things
much talk'd of in Town, and these
People get Money by what they
Sell: But this is at random; I
remember a Wise saying of the
great Man under whom I was
bread; The Great *Sylvius*: *Qui
forte fortuna curat, forte fortuna necat*:
He that Cures by Accident,
Kills by Accident: But then I
shall be ask'd; What! Are these
not good Medicines? give me leave
and I'll let you know how far they
are, and in which these Men are
right, and in which they are wrong;
they have Medicines that are good
for some People, in some Consti-
tutions, and at some times; but not to
all

all People, in all Constitutions, or CHAP.
in all Seasons or Times. Neither XVIII.
is such a Medicine known.

Daffy's-Elixir is good for Old People, that are Phlegmatic and Costive; for it is made of warm, Pectoral and Carthartic Ingredients, it has in it *Raisons of the Sun*, *Senna*, *Rhubarb*, *Lignum Vitæ*, *Ellecampain*, *Liquorish*, *Coriander*, *Sweet-Fennel*, *Parsley* and *Annis-Seeds*; and these things are infused in *Aq. Vitæ*, (good Brandy would be better, adding a little *Sal. Tartari* to it) this is all, and is a good Medicine for some Persons in some Cases, &c. but not in all, for in some it will do mischief.

Tipping's-Liquor is made with the following Ingredients, (he will not own it perhaps, but I was well acquainted with the Old Man, when he

CHAP. he Lodged at one Mr. Brent's in
XVIII. Aldersgate-street, and he told me
freely, well knowing that I had a
great many as good or better Me-
dicines) *Saxifrage, Parsley, Eryngō,*
Pimpinella Roots, Winter-Cherries, Ju-
niper Berries, Milium Solis, Fennel,
Nettle-Seeds, Veronica, Nephritick-
Wood, Sassafras, Mace and Cinnamon.
These things in proper Pro-
portions are all Distill'd; and then
a due quantity of White-Wine,
in which *Radix Ononidis* is in-
fused, is added to the Distill'd
Water, which may be colour'd as
the maker pleases: And this is
Tippings-Water, and a good Medi-
cine; but not fit at all times for all
Persons, &c.

Roger's Pouder is a fix'd Alkaly,
that I prescrib'd 25 Years ago in
some Cases, where Acid Humors
were Peccant, and for Children
that

that Eat much Cheese, and live most upon Milk, &c. it is nothing but Mussel-Shells Calcin'd in a Crucible, and stamp'd to a Pouder, which he Sells at Five Shillings Three Doses, and which does wonders if you will believe it; I have wrote a Thousand Bills to the Apothecaries in London for the *Stone* and *Gravel*; and if every Apothecary should expose to Sale his *Nostrum* that he has got by mine or other *Physicians* Prescriptions, we should be clogg'd with abundance of this sort of Trash, and the People might run Mad after such Medicines to their own Ruin.

Mundus vult decipi, decipiatur.

All the Books of *Physic* are so full of Remedies and good ones too, against this Disease, that it is hard

CHAP. hard for those that are not very
XVIII Skillful to know which to chuse:
Some have been Cured by *Anodyns*,
(of which there is a remarkable
Story in *Gregorius Horstius*, of a
Courtier that was Cured by taking
first every Day, and afterwards
every other, only one Grain of
his *Laudanum Opiatum*) others by
Alkaly's, and others again by what
is contrary to them.

Dr. Colebatch informs us that he
caus'd a Stone to be brought away
from a Woman, by *Salino Sulphurious*
Medicines, that was an Inch and
half and half quarter long, and
Three Inches and half round one
way, and two Inches and half
another.

And last Summer by only giving
some few Doses of *Saline Medicines*
I brought away from Mrs. Puckford
(who now Lodges at the *White-*

Swan,

Swan, against Buckler's-Bury, near Stocks-Market) 6: Stones of several shapes, many of which were as large as Capers; they may now be seen, she keeping them by her in a Box.

Yet it is neither this nor that Medicine, but the Skilful Application of 'em that gives Relief; but to go on more Methodically.

First as to Diet in general hear *Forestus*. *Cavere oportet cibaria substantiae duræ & quæ ægre manducatione atteruntur, & quæ multum substantiae habent: gravis item qualitatis, & quæ difficulter commutantur & supernatant, & ægre per alvum subeunt.* Item quæ meatus obstruunt, aut diutius in Corporibus insident. *Ex kujusmodi cibis venter labore fatigatur, ipsos aut Crudos aut semicoctos ad Hepar & Renes digerit, & inepte excolati inspissantur.*

There-

CHAP. Therefore we are to Eat **Meats**
XVIII. that are of easie Digestion, have
an inciding and attenuating quality,
also choice of *Broaths*, of *Veal* and
Capon, prepared with *Charvel*, *Sorrel*,
and *Barley*; especially in the Spring
of the Year, in which Season,
Sobriety and Moderation, ought
particularly to be observ'd and con-
venient Exercise, &c. us'd.

The six *Non-naturals* are also to
be considered. As to *Physic*, in
Cases where there are *Crudities*,
give no *Diuretics*, but first a good
Emetic.

Pituitam Evacuare, etiam utile &
Diasosticon. Et enim hanc viis Urina-
riis Communicat totum Corpus, vitio
praesertim ventrici languidioris, Excre-
menta multa ex improbo victu conge-
rentis, quæ ad Renes delata in Lapidem
tandem indurantur Prævot.

A languid Stomach, having received unprofitable Food, breeds much *Excrementitious Humours* which clogg the inward Parts, and being brought to the *Kidneys*, breed *Gravel*, and cause other Obstructions.

After Vomiting, *Terebinthinate Medicines* and the *Mineral-Waters*, are often excellently useful to dissolve the Matter, (which by Excesses is generated) and carry it away with *Gravel*, &c. the latter also mitigates the heat of the *Reins*, to which those afflicted with *Gravel* are frequently incident: Bleeding is often very Requisite to abate an *Inflammation* occasion'd by the *Stone* and *Gravel*.

If a *Stone* be formed in the *Kidneys* and be small, let it be remov'd with proper *Medicaments*; but first, if the Patient can take it without inconve-

CHAP.
XVIII.

CHAP. inconvenience, give *Ol. Amygd. Dulce,*
XVIII. or something of that Nature, to Lubricate the Passages, to which may be added *Succus Limonium & Vinum Album*, as the Physician thinks proper.

A Man above 60 Years Old voided by the help of *Ol. Amygd. Dulce*, and a few drops of *Balsamum Naturale*, 65 Stones in the space of Ten Days ; and *Avenzoa* says, That with the same Medicine he Cur'd a Scrivener that was brought to Deaths door with the Stone.

Emollient Clysters with Chamomill, Lillies, &c. are likewise very useful ; the following is good ; Rx Rad. Alth. ʒi. Herb. Malv. Paeatar. Mercurial. ana. Mi. Sem. Lini ʒβ. Decoq. cum Aq. Commun. fbi. Colatur. add. Terebinth. Ovi Vitello solut. ʒβ. Ol. Lini ʒii. Eleſ. Lenitiv. ʒi. M. F. Clyster.

Some

Some make these sort of *Clysters* CHAP.
cum sapone Castiliensi, and instead of XVIII.
Aqua pura, take *Urina Hominis sani*.

After *Clysters* let *Diuretics* be given,
but not without the Advice of a
Physician least mischief be done.

Lacuna a renowned *Physician*, who
wrote most learned *Commentaries*
upon *Diascorides* in the *Spanish Tongue*, affirms, that he frequently
Cured suppressions of *Urine* from
the *Stone* and *Gravel*, by giving
Raison Stones, in Chicking Broth,
for that when nothing else would
do, it brought away large *Gravel*
and a *Stone*, that stuck so fast in
the *Urinary Passage*, that by all o-
ther *Physicians* the Patient was rec-
kon'd past Cure.

And thus simple Remedies when
skillfully prescrib'd according to
the Patients Constitution, Symp-
toms of the Disease, and other ac-

R cidents

CHAP. cidents of time, &c. often prove
XVIII. very Efficacious, when the most
celebrated Medicines being wrong
tim'd, or given without regard to
the Patient's habit of Body, or con-
trary to a right Indication, &c.
instead of proving serviceable may
be destructive and cause Death;
What shall we say then to those
boasted Remedies before-mention'd?
which are said each of 'em, to
serve for all the Intentions of Cure.
I would not injure or bespatter the
Authors or *Proprietors* of such pre-
tended *Arcana*, but really it were
better they kept to their *Trades*, for
Hundreds of Persons have been un-
done by untimely *Diuretics*, &c.

Suppose a Patient should have
a Stone or Stones too big to move,
as was the Case of a Gentlewoman
my Patient, whose Husband I in-
form'd that she could not recover;
and

and desir'd that when she died he CHAP.
would send for me to have her XVIII:
opened: (I have named her before,
Mrs. Gripp): If I had given this
Woman any *Diuretics*, she would
have miscarried the sooner. Such
cases ought only to be Palliated with
Fomentations, *Catalplasms* or the like
Externals; some *Mucilages*, *Ano-*
dynes, and *Emulsions* may also be
given internally: Further, add to
the former a Bath of fresh Water,
with Emollient Herbs, and some of
those call'd *Lithontriptics*, which be-
ing properly us'd, will sometimes ef-
fectually relax the Passages; the fol-
lowing proves very serviceable.

Rx Rad. alth. ʒiiii Folior. Malv. perie-
tar. Chærefolii. Flor. Chamomill. Melilot.
an. M. iv. sem. lini ʒi. Malv. Petroselin
an. ʒiii. decoq. in aq. Commun. ad ℥iiii.
pro Fotu.

CHAP. Reliquæ decocti deinde Pistentur & F.
XVIII. duo sacculi quadrati, qui post fotum pannis
Wallicis Expressis, lumbis calidi applicentur.

These things according to their several requisitions preceding, do good, at least if they do not Cure, they will mitigate the Symptoms, and cut off part of the Matter that breeds the Stone, but will kill no body: And what I have said concerning Quacking-Reme-
dies, I wrote without Envy, for I have lived here near 40 Years, and it is fit I who have observed many irregular ways in the Practice of Physic, and especially in the Stone and Gravel; it having been the greatest part of my Study, should give all the necessary Hints and Cautions in this difficult Point of Physic, to preserve the Afflicted from Ruine, and the Young Physician

sician from making mistakes in Practice: Could I not name Persons, Time and Places, in whom, when, and where, I have seen miscarriages by irregular Administration of Physic? Is it not irregular to give an *Elixir* before named, made of hot and Spirituous Ingredients, in *Ardent-Fevers*, in *Vigiliis*, in great *Thirst*? in *Heetick Persons*, *Consumptive People*, in *Dysenteries*, in *Inflammations* both of *Kidneys* and *Bladder*? Read *Sennertus Lib.* iii. *Practic. Part vii. Sect. i. cap. viii.* Read *Heurnius in Prax. Med. Lib. ii. cap. xii.* Read *Galen Lib. xiii. Method. Medend. cap. vi.* Read *Riolanus Method. Medend. Particul. cap. de Renum Inflammatione*, who all inform us, that such sort of Medicines, especially being hot, we must refrain prescribing, for they

R 3 bring

CHAP. bring more *Morbific matter* to the
XVIII. afflicted part and increase the *Disease, &c.*

Dionysius Fontanus (*de Morborum Internorum Curatione cap. xxxvii.*) orders Moistening, moderately Cooling, and Balsamic Medicines in these Cases; but nothing that is Sharp, Sweet or Purging.

I have seen *Tipping's-Water* given in a *Diabetes*, and *Daffy's-Elixir* in the *Gout*; but with what success any one may judge.

Calida & Acria non sunt addenda calidis acribusq; peccantibus Humoribus.

I have met with many of the Female Sex (*Nimio Menstruorum fluxu laborantibus*) who having Pains in their Backs, took those Quacking Diuretics, which increas'd the Disease and brought them to Deaths-door, and who afterwards by means of Bleeding, gentle Restrainers,

gents, and Laxatives, &c. which CHAP.
as the Case requir'd I prescribed, XVIII.
were perfectly recover'd.

Joannes Walæus tells us, that Diuretic Medicines are better in the Winter than Summer, better in the Morning than in the Afternoon, before Eating, and on an empty Stomach, than the contrary, better when the Disease is declining than when in full Vigour. See *Walæus in sua Method. Med. Titulo de Diuretis. P. M. LXX.* where he also gives his Reasons for what he lays down.

Guialterus Bruele, in *sua Praxi, Medicina Theoretica & Empyrica Familiarissima cap. de Curatione Calculi P. M. 343.* says;

That before you give Diuretics, you should gently Purge, or mingle with Cathartics small quantities of Diuretics, but the aforementioned

CHAP. Walæus tells us, that some of his
XVIII. Patients took Cathartics and Diuretics
~~~~ together with ill success. Read his  
Words

*Quidam simul & eodem tempore, &  
alvum ducere & Urinam Movere volu-  
erunt, verum infelici successu.* Walæus.

Guilielmus Fabritius Hildanus in his Chirurgical Observations, the 3d. Century, the LXXII Observ. P. M. 255 and 256. observes from Rondeletius in his method of curing Diseases, Chap. ix. that all Diuretic Medicines force the Serum to the Kidneys, and cause Stipticity in the Bowels. The Body ought to be kept open, for which end prescribe Cassia, Manna, Purging-Waters, &c. as the Case requires.

When ever Diuretic Medicines are prescribed in a dry form, it will be convenient to give them with warm'd Mead, Whey, or White-Wine,

Wine, which will cause them more CHAP.  
easily and quickly to get to the XVIII.  
Mass of Blood, and thence to the  
Kidneys than otherwise they would.

Rx Sal Prunell. ʒβ Cochinel. Tinctor ocul.  
Cancr. Test. ovor. Calcinat. Sal sambuc.  
vel Stipit. Fabarum an. ʒi. Croc. opt. gr.  
xv. Ol. Junip. gutt. vi. M. F. Pulv. in  
Chart. iii. Divid.

This Pouder will do a great deal  
more than that sold by Mr. Rogers,  
&c. and when given according to Art,  
with regard to all Circumstances,  
and a true *Indication*; it will At-  
tenuate the Blood and Juices, cause  
a plentious Secretion of the Serum,  
solve Gross Viscid Matter, and bring  
it forth by Urine with Stones (if  
passable) and Gravel: When Diu-  
retics are proper, the following  
*Apozem* (of which the Patient may  
drink at his pleasure) is good.

Rx Rad.

**CHAP.** Rx Rad. Ononides foenic. petrofelin:  
**XVIII.** Liquirit. Raf. an. ʒβ. Sem. Alth. Malv.  
 ~~~~~ Cicer. Rubr. an. ʒiβ Sem. 4. frigid. Maj. an.  
 ʒi. Fic. ping. N°. v. Sebesten. N°. iii.
 Hord. Mund. ʒi. grana Alkekeng. N°. vii.
 Decoq. in aq. Commun. ad tibi. Coletur. add.
 Syr. de Limon. de quinq. Rad. an. ʒi.
 M. F. Apozema.

The following Draught being given now and then in a Morning, sometimes proves very serviceable.

Rx Aq. Rad. Ononides, Aq. Raphan.
 Comp. Vin. Rhen. an. ʒii. Oculor.
 Cancr. ʒβ. M. F. Haustus.

And the next being taken Night and Morning, has great Efficacy.

Rx Oculor. Cancr. Sal. Prunell.
 Cremor. Tartar. an. ʒβ. cum aq. petrofelin. ʒii. & Syrup. Dialth. ʒiβ.
 M. F. Haustus.

But these as well as more powerful Medicaments that may be prescrib'd, must be chang'd, alter'd, or varied according to the State of the Patient, &c. as a skillful Physician shall direct, otherwise instead of the Disease being Cur'd the Patient may be spoil'd.

When *Diuretic Medicines* have been taken, the Patient ought gently to move about, for by that means the *humours* are made more liquid, the *Diuretic* sooner propell'd, and making of Urine is accelerated. If the *Operation* goes on but slowly, he should drink warm *Rhennish-Wine*, or other Liquor, that promotes Urine: if that does not do, let the Patient be anointed, and *Friction* be used, or apply warm *Fomentations*, *Diuretic Cata-plasms*, or lay on *Blisters*, &c. what *Cantharides* will do in this affair, I have

CHAP.
XVIII.

CHAP. have sufficiently treated in my
XVIII. Book, *de Tuto Cantharidum usu In-*
terno: Nay, Externally they also
Irritate the *Urinary Parts*. The
Loyns being Anointed downwards
quite to the very *Groin*, with the
following *Linniment* may often
prove very Beneficial in relaxing
the passages, that *Gravel* and small
Stones may pass through and be
Evacuated.

R. Ol. Iilior. Albor. Amyd. Amar. an.
53 Scorpion. pingued. Gallin. au. 3ii.
M. F. Linimentum.

These and the like Methods re-
gular *Physicians* take, but to the
Vulgar Pretenders, who do not un-
derstand the true Practice of *Physic*
or know any thing of the fore-
mentioned *Rules*, the very best
Medicine, is, *Gladium in Manu fu-*
rentis: A Sword in a Mad-Man's
Hand.

Further,

Further, as long as a *Diuretic* is working, or in agitation, the Patient must not Eat, for that causes a Retraction from Nature, if they do Eat, *Chylification* will be spoil'd, for the Stomach will give way to crude and *inconcocted humours*, which will rather augment *Obstructions*, and create *Gravel* and the *Stone*, then remove the same. When the force of the Medicine declines be not too busie in provoking Urine; (*in medio consistit virtus*) for if there be no more Serum to be Evacuated, you will often see the Blood come instead of it; *omne nimium Naturæ inimicum.*

Therefore after the force of the *Diuretic Medicine* is over, you must not drink much *Aqueous*, *Spirituos*, or *Volatile Liquors*.

If too much Urine comes away, and you have over done it, Corroborating, Subaustere, and Restrингент

CHAP. stringent Medicines must be given;
XVIII. and the Patient must then keep
from those *Liquors* that are perfect-
ly Fine, and have purg'd them-
selves from their gross and dissimi-
lar parts, (tho' they are good at
other times) because they most
readily pass off by Urine; for
the thinner the *Liquor* is, the sooner
it passes, and especially if it be
drank when the *Stomach* is empty,
for then, making no long stay there,
nor being entangled with the other
Parts, the whole quantity insinu-
ates into the *Blood*; where for want
of a due medium of some grosser
Parts, it does not so intirely or per-
fектly mix; and for that reason the
sooner goes off with the *Serum* by
Sweat or *Urine*; if it works too
much by *Urine*, let the Patient
keep in Bed, and it will common-
ly go off by *Sweat*, which then
would

would be the best way ; but if you would have it go off by Urine, you must not keep in Bed, but arise and move about as I said before ; for then, not being encompassed with an equal or sufficient warmth, it cannot Evaporate by the Pores, but will run off by the Kidneys : Diuretics seldom enlarge Urine, when the Body is too hot (which may serve as a hint worthy the Observation of those at Tunbridge, not to drink the Waters in Bed) it is a common and true saying, that when Men Sweat most, they usually Piss least ; and when they Sweat least they Piss most : *Sudoris enim & Urinæ una eademq; est materia.* Sylvius.

If I should go further, I must come to the Motion of the Fluids, and the several Secretions that are made from thence, and account for

CHAP.
XVIII.

CHAP. for the disorders in the *Animal Oeconomy*, for which I have neither room
XVIII. nor time.

But by what I have wrote, any Person may see the danger a Patient undergoes, in adventuring upon Medicines given by Ignorant Men, (who's Profession it is not to meddle with such things,) however they may be cried up: A poor Clark in *Old-Change* was of late out-right kill'd by the irregular practice of an illegal Undertaker, not two Months ago; I could name Scores of 'em. *Nulla pœna Constituta est Medicinæ nisi Ignominia:* The Law should take place in such cases!

Thus far I have laid down what Caution we are to have about *Gravel* and *Stones* in the *Kidneys*, which if small upon the foregoing Considerations, the next Indication is

is to remove 'em as before taught : CHAP.
XVIII.
But we must not at all endeavour to force a large *Stone* from the *Kidney*; for if it be removed into the *Ureter*, the tormenting Pain that attends it, often causes Convulsive Motions, and Swooning, which ushers in Death, unless timely mitigated by *Intrinsic Remedies*, *External Fomentations*, &c.

Natura a Renibus usque ad Vesicam ureteres angustos admodum reddidit, in quos si calculus decumbat eisq; impactus hæreat, intumefactio interna, febris, sæpe etiam delirium, Lipothymia, aliquæ periculosa Symptomata sequuntur; adaucta postmodum Inflammatione & Subsequente Gangræna de hominis vita detum est.

Hildan. Cap. 25.

S

Thus

C_HAP. **XVIII.** Thus it is Evident when large Stones are in the *Kidneys*, they must not be forced thence, (do not wake a sleeping Lyon!) whence the case must necessarily be very difficult and dangerous.

Now whether there be any thing in Nature that will dissolve such a Stone in an Humane Body, has long and much been controverted, if it be brittle and of a lax substance, that it may be broken, is not disputable, experience sufficiently confirms it; for which purpose *Matthiolus* and *Dodonæus* do attribute a wonderful Efficacy to that which we call *Virga Aurea*, and *Arnoldus De Villa Nova*, thereto subscribes his *Probatum*, as excellent in *Syrup*, *Paste* or *Electuary*.

Of that kind is suppos'd to be the Medicine of Dr. *Robinson*, which is

is the *Tincture of Pilulæ Matthæi*:
so is the *Pulv. Millepedum*, with which,
Hartman acquaints us; a Stone larger
than an Hens-Egg, has been
broken; and the Learned *Lau-
renbergius* assures us, that himself
has been cured thereof by the same
Medicine.

Peradventure sometimes Imagi-
nation may add to the Efficacy of
the Medicine and make it the more
prevalent: *Crollius* rightly observes
that there are many cured of Dis-
eases by *Imagination* only; for Na-
ture often submits to the Thoughts;
and vehement desires of the Soul,
and our Spirits being affected, the
Body is affected also, in which the
Spirits do reside.

That *Spirit. Nitri* will break the
Stone of Man's Body, when it is
out of the Body, is most certain,
having been experienced; but such

CHAP. a quantity thereof, as is requisite
XVIII. hereunto, is not at all to be given
inwardly, or injected into the
Bladder, without being much *Diluted* and then its force is lost.

The *Nephritic-wood*, and the *Sanguis Hirci*, &c. which the most Learned Dr. Crell, Physician of our College, has made so Famous in the Practice of *Physic* in sundry Cases, are recommended as *Lithontriptics* of no inferiour Efficacy, duly administred.

But because the Foundations of future Health are perhaps laid in the first *Conception*, from whence the Good or Evil principles of Health may be transmitted to the Off-spring; therefore an Hereditary disposition to the *Stone* may not be supposed Curable by any Medicine. *Hujus Viri Natura ita Constituta erat, ut si hodie ipsius Renes*



& Vesica ab omni arena & calculo expur- CHAP.
gebantur, subsequenti tamen die novi sub ~~~~~ XVIII,
oriebantur: ab hoc enim Viro ultra 300
calculos per Medicamenta propria foras
eduxerat. Hildanus.

Those that are curious to find out Medicines to break Stones either in Kidneys or Bladder, may read the following Authors and try the Medicines recommended, as the Nephritick Liquor of Mysicht. Armament. Pag 338. *Mistura Muffeti Angli Cistæ Mediceæ*, Pag. 34. *Expulsorium Calculi Zwingeri Cist. Med.* Pag. 35. *Saxifrag. Libavii in Alchemiæ Pharmaceutic.* Cap. 35. *Quercetan.* Crolius in his *Basilica Chymica*, Lib. 3. Cap. 21. *Hæc sunt Lithonthriptorum Selectissima*, says Guialterus Charleton, M. D. in *Spiritu suo Gorgonico.* Pag. 239. Where you may also find the new Catheter, invented by *Van Helmont.* Pag. 240.

CHAP. To break a Stone, follow Charleton
XVIII in his *Diatriba de Lithiasi*, his *Scopus Secundus Curativus*, viz. *Calculi in prima sui entia, analysi retrograda, resolutio*: That is a Resolution or Breaking of the Stone from its first beginning (*analysi retrograda*) to break first what cohered and petrified last, and to distroy last what petrified first: There you will find a laborious method and when he has done he calls it (*Nugamenta*) meer Trifles, Toyes, *Res nullius pretii*, &c. A certain Author upon this head has these words: I would advise those, who are not very skillful in the Art of *Physic*, to forbear giving of any thing in these Distempers, without the Assistance or Advice of an Experienc'd Physician; for I believe many Stones have been bred in those Bodies (that before were free from it) by the

the frequent taking of Medicines CHAP.
which have been invented to dis- XVIII.
solve the Stone. *Johnson Enchyrr.*
Medic. pag. 262.

The solvent of the Stone, to be taken inwardly, ought to be *Homo-geneous*, and so singular, that it submit not to any Digestion, or Fermentative Power, through which it passeth in its way to the Parts affected; for the vertue of most Remedies taken at the Mouth, are altered and transmuted in passing several Digestions.

Now I shall sum up the whole in the *Latin Tongue*.

‘ Ipsos Renes vera Inflammatione occupari scimus ex dolore ardente, pungente, magno, Inflammatorio loci ubi Renes siti sunt; ex febre acuta, continua concomitante; ex Urina pauca, saxe parva Copia, Emissa, ad-

CHAP. modum rubra & flammea, vel in
XVIII. summo malo aquosa; stupore
 Cruris vicini; dolore Inguinis,
 testisq; Vicini; dolore Iliaco, vo-
 mitu Bilis, ruetu assiduo.

Hanc producunt omnes causæ
 generales Inflammationis renibus
 applicatæ; adeoq;

1. Quicquid fines arteriæ ad
 transmittendum impedit, vulnus,
 Contusio, abscessus, tumor, de-
 cubitus diuturnus, nixus Corporis
 validus, Lapillus.

2. Quicquid urinam in Pel-
 yim, ureterem, vesicam transfire
 Impedit, ut similes causæ, ac
 mox enarratæ, applicatæ his Par-
 tibus.

3. Quæ Crassiora Sanguinis vi
 adigunt in canales urinosos, ut
 Cursus, equitatio diurna & ve-
 hemens, æstus, nixus, Plethora,
 diuretica acria, Venena.

4. Spas-

4. Spasmodica Contractio omni-
um illorum vasculorum diu per-
manens.

Si summa Inflammatio hæc
vascula occupat ita sæpe stringun-
tur, ut nihil reddatur lotii: ali-
quando ut valde parum, pelluci-
dum, tenue, aquosum, quod
pessimum. Irritatis sæpe nervis
Cohærentibus & vicinis, dolores
& Convulsiones facit per Stoma-
chum, mesenterium, Intestina,
ureteres; unde ructus, nausea,
vomitus, dejectiones alvi, Ileus
(sive miserere mei) urina intercepta,
crurum stupor, horum Immobi-
litas, lumborum ardor.

Sanatur bonitate naturæ &
morbis. 1º Per resolutionem. 2º
Urina Copiosa, ruffa, Crassa,
continuato fluore redditia antediem
morbis septimum, aut ad sum-
mum

CHAP. ' mum quartum decimum. 3°
XVIII. ' Hæmorrhoidibus initio morbi
~~~ ' large fluentibus.

' Sanatur, ubi in Statu Inflammationis per sua signa noscitur.  
' 1° Per remedia generalia, omni Inflammationi sanandæ propria,  
' venæ Sectionem, avulsionem, Dilutionem. 2° Decocta Lenia,  
' Emollientia, anti Phlogistica magna copia ingesta. 3° Clysmata,  
' fomenta, Balnea, ex iisdem Constantia. 4° Victu humido, leni,  
' quiete, vitatione lecti Calidi, imprimis autem decubitus in dorso.

' Si nimia symptomata doloris vel Convulsionis urgent, opiate profundit.

' Vomitum autem nimium, morbi Symptoma, saxe ingestu tepidæ mellitæ juvare prodest.

' Atq;

‘ Atq; hac sola methodo tuto  
‘ Curatur ipsa Nephritis a calculo,  
‘ renibus, ureteribus impacto,  
‘ orta.

CHAP.  
XVIII.

‘ Si causæ nephritidis magnæ,  
‘ nec malum resolvitur, nec Sana-  
‘ tur, sed excurrit ultra septimum  
‘ diem, abscessus metuendus ; quem  
‘ fieri docet remissio doloris, ejus in  
‘ Pulsationem mutatio, horror sæpe  
‘ recurrens, gravitas, stuporq; par-  
‘ tis ; jam factum esse docet præ-  
‘ gressus priorum, tum pulsus, ar-  
‘ dor, tensio in loco, urina puru-  
‘ lenta, fœtida, instar urinæ falsæ  
‘ Putrefactæ : Simul ac abscessus  
‘ ille factus scitur, utendum valde  
‘ maturantibus primo & emollien-  
‘ tibus, dein purulenta apparente  
‘ urina, diureticis puris ex a-  
‘ aquis medicatis, mineralibus, sero  
‘ lactis, similibusq; usurpatis simul  
‘ Balsamicis.

‘ Si

CHAP. XVIII. ‘ Si vero suppuratio illa diu durat, totus ren Exesus saccum format, nulli usui servientem; tumq; frequenter Tabes Renalis adest. ‘ Si scirrum hic format, Paralysis, ‘ vel claudicatio cruris suppositi oritur, immedicable malum: Unde ‘ saepe lenta Tabes, Hydrops, &c. ‘ Si autem Parva Copia Materiae Inflammatae coagulata in folliculo urinæ minimo hæserit, basin format, cui apposita sabuli in urina materies crustatim accrescens calculum renalem creet, siveq; eundem augeat.

‘ Quin etiam in Gangrenam transit, quod docet Vehementia causæ, symptomatum, absentia levaminis per Remedia, & subita remissione doloris sine causa, cum sudore frigido, pulsu debili, intermittente, singultu, urina vel nulla, vel livida, nigra, capillosa, fœtente, carunculis

culis fuscis nigrisve foeda, defectu CHAP.  
virium subito, summo: ubi nihil XVIII.  
juvat, imo nec ipsa Medicina.

Hinc patet infinitas esse Nephritis  
species causasq; & inter eas  
unam a calculo, tamen esse om-  
nium eandem ferme curationem.

These usefull *Aphorisms* I have  
taken from that Learned and most  
Ingenious *Philosopher* and *Physician*  
*Hermannus Boerhaaven*, M. D. at  
*Leyden*, with which I would dis-  
miss my Reader, but that I have  
something to say about *Lithontriptics*,  
which I promis'd before.

CHAP.

## C H A P. XIX.

*Of Lithontriptics, by way of Apology  
to the Art of Lithotomy.*

Following the common Road of Authors, I have spoke of, and prescribed *Lithontripties* as others do, but whether there are really such Medicines, that are able to Break, Waste, or Dissolve the Stone, whilst it is in the *Kidneys*, and but newly made, I intend not to examine into, much less dispute.

But the *Lithontriptics* I shall speak of, are only those *Gigantick Remedies*, that slighting all the *Mutations*, they are forced to undergo in the Body, still preserve a peculiar Virtue, by which they are capable, to

to Break or Consume a Firm or <sup>CHAP.</sup>  
Solid Stone, that torments the <sup>XIX.</sup>  
Bladder, the principal seat of its  
Tyrannick Empire.

If indeed such Remedies were certainly to be had, whoever should expose People to that exquisite Pain, and immediate danger of their Lives, which are both so unavoidable in the *Operation of Lithotomy*, ought to die no other way, than by the Hands of the Common Hang-Man.

Wherefore I never wond'red, that those *Physicians*, who were of Opinion that there were such Remedies in *rerum Natura*, exclaim'd against the Barbarity of *Lithotomists* with so much violence as they have done; but I think also, that those *Physicians* are still more Barbarous, who being possest of those noble Medicines, by keeping the Secret

**CHAP.** cret to themselves, suffer their fellow Creatures to be, as they call it, so inhumanly dealt with: To pretend that it would be a Sin, and displeasing to God, if his *adepti* should reveal or dispense those *arcana* to the Vulgar, is a trifling if not an Impious plea. One of the greatest Enemies of this *Operation* was Dr. *Charleton*, as may be seen in his *Diatriba de Lithiasi*: That Learn'd Physician did not Vaunt, that he knew such a Secret, but he not only believed that others did, but likewise was so angry with those that desir'd to be assur'd of the Existence of it, that he accuses them of Implicit Blasphemy, quoting for that purpose the Words of *Van Helmont*, who says, *Si quis pecando contra hoc peccatum quidni bene medendo eandem radicitus tollat?* Insinuating what *Charleton* says, that they

they Sin. *Omnipotentis manum impie CHAP.  
curtando, & Creatorem vel ignorantiae  
vel obliviscientiae, vel immisericordiae,  
quasi non potuit creare adaequatum &  
victoriosum remedium cuilibet morbo,  
vel nescivit, vel noluit, temeritate plus  
quam Paganica accusando* And yet  
after all, the greatest reason he  
gives, why he believes that there  
are such Medicines, is, because he  
has read Modern Authors, that  
say they have such, and among o-  
thers he quotes two instances,  
on which he seems very much to  
rely ; The first is that of Cardanus,  
who, in *Libr. de varietate rerum*, re-  
lates : *Sua etate virum per Longobar-  
dos oberrasse, qui paucis diebus quodam  
poculo passim, secure, certo, citoq; sa-  
nabat quotquot Calculos in Vesica habe-  
bant : Et mox subjungit, se non  
dubitare hunc virum in inferis esse,*  
**T** *quod*

CHAP. quod moriens artem suam mortalibus  
XIX. Inviderit. The second, which he  
puts great stress upon, is, what  
*Van Helmont* likewise makes use of,  
the *Epitaph.* of *Paracelsus*, which  
runs thus: *Conditur hic Philippus*  
*Aureolus Theophrastus Paracelsus in-*  
*signis Medicinæ Doctor, qui dira illa*  
*Vulnera, lepram, podagram, hydro-*  
*pisim, aliaq; insanabilia corporis con-*  
*tagia mirifica arte sustulit, & bona*  
*sua eroganda in Pauperes, elocandaq;*  
*honoravit, &c.*

*Van Helmont*, thinks that under  
the *insanabilia* here mention'd, must  
be reckon'd likewise *Astma's*, *Con-*  
*sumptions*, and the *Stone*.

As to the first of *Cardanus*: If  
we believe all that is reported of  
*Mountebanks* (for by using the  
*Word oberrasse*, he seems to mean  
*Mountebanks*) there has been a-  
bove

bove half a Score in London that CHAP.  
have done the same. To the se- XIX.  
cond I shall only say, that if all  
Inscriptions on Tombs are true, most  
People that left Wealth or Fame  
enough to purchase them, are  
certainly gone to Heaven; since  
they are all noted Panegyricks upon  
the Dead, and in my Opinion  
very weak Arguments to prove  
Truth by. *Sed quam parum sibi  
Constant etiam viri Eruditissimi!*

That great Man (Dr. Charleton) for  
whom I have much Veneration, in  
many places extols *Van Helmont* to  
the Skies, and calls him *invictus Spa-*  
*gyrorum Corypheus.* And yet in ano-  
ther place he not only refutes his  
Hypothesis of the *Duelech* or Stone  
in the *Bladder*; but likewise accuses  
him of Falsity and telling noto-  
rious Lies, using these words:

CHAP. XIX. *Languidam non nisi experti sumus opem ex præsidiiis antigorgonicis, quibus certissimo tanquam asylo miseris calculosos humana cum fiducia delegavit, interimq; Coagulatoris excidium, imo Confirmati jam Duelech resolutionem conversione retrograda in primam sui materiam Conscriptit.* Now if these *Adepti* write Untruths themselves whilst they are Alive; I do not know, what reason we have to heed what their Friends say of them when they are Dead.

If there be them, that know those *Arcana* and Excellent *Reme-dies*. (as one in the Fall-Mall, who at least has pretended so for many Years) all my Wonder is, that we see no effect of it: These Gentlemen by an *Opiat* give Ease, which is but a Trick, and does nothing in the main as to break-ing

ing of the *Stone*; and for my part, I declare, tho' I have been as conversant with this Distemper, as any body, I never knew one freed from the *Stone* in the *Bladder*, if it was too big to pass the *Urethra*, but by *Cutting*. I do not say it is impossible, that such a Remedy should be found; but considering how little even the greatest *Chymists* despise Gold, and the vast Treasure, besides an Eternal Glory that might be got by such a Medicine, I think it is highly improbable that such a Remedy is found out yet. I desire then, that the great Enemies to the Art of *Lithotomy* would be more considerate, and not blame us, who, to deliver People from an unspeakable Calamity, make use of such a violent method, whilst o-

T 3      ther

CHAP. ther effectual means are want-  
XIX. ing.

The Operation I own is difficult, and ought not to be perform'd but by Skillful Hands, and never to be undertaken but by well Instructed Men. If some People knew what belongs to it, they would not think the Practice below a *Physician*; I know it has upon that account in some measure Eclypsed my Practice in *Physic*; but how ridiculous this is, every body may see, that reflects on the famous *Physicians* who did the same; *Cornelius Celsus* that Renown'd *Physician* amongst the Romans, the great *Mages Ammonius*, *Joannes Antracinus*, *Sanctus Barolitanus*; Were they not the greatest Practitioners of their Times? and yet they were *Lithotomists*, and Cut for the *Stone*.

The

The Cure it is true, is hazardous ; but then the Torments occasioned by the *Stone* are insufferable ; and if some of my Patients, as they do of others, have died by *Cutting* ; yet by the same *Cutting*, for my own share I have freed from that cruel *Disease*, Two Hundred Fourscore and more, that have lived and done well after it, and whose Names I can at any time produce, with the Days, Months, Years, and Places, when, and where they liv'd.

These without *Lithotomy* must either have quickly died, or else have been miserable almost every moment of their Lives.

Let any body shew me that he has a Remedy, that Cures the *Stone*, and I'll Cut no more : It is perhaps from the Art of *Cly-*

CHAP. mistry that we may expect this  
XIX. Miracle; and I confess I have  
tried little that way. *Non omnia*  
*possimus omnes*: But if the Ingeni-  
ous Physician, Mr. Benjamin Marten,  
who is a great lover of Chy-  
mical Experiments (and now con-  
cern'd with me in *Lithotomy*) thinks  
fit to search after such a Remedy,  
I shall be so far from discouraging  
him, or indeed others in perfuit  
of such a noble end, that I shall  
heartily wish them Success, as I  
have always unfeignedly done to  
all, that endeavour'd the Benefit  
of Mankind.

Post-

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## POSTSCRIPT.

WHEN I had finish'd this Treatise and made it ready for the Press, I was sent for to one Captain Rogers's, over against Shad-well-Church, in Ratcliff-High-way; The Patient was his Little Son of 22 Months of Age: I found the Child in great Torment, and the Parents told me that he had been so for a Fortnight; an Eminent Physician had prescrib'd several Medicines, but all in vain, at last he began to suspect the Stone, and advis'd them to send for me, the Captain at first could not believe it possible, alledging, that himself, nor his Wife, nor the Parents of either, had ever been troubl'd with the Stone or Gravel; and that they

they had never given the Child any thing that is forbidden in that Distemper: However I was sent for, search'd the Child, and found a Stone, and two Days after I Cut the Child very Successfully, and took out the Stone, of the bigness of a large Filbert.

Tho' in this Case there seems nothing remarkable besides the Youth of the Child, yet I thought it not unworthy of Observation, for two Reasons; the one *Theoretic*, and the other *Practic*.

As to the first; That a Child, where this Distemper could no ways be suppos'd Hereditary, and that never Eat, or Drank any of those things that are said to cause, or encrease the Stone, should yet be afflicted with it so soon, is a certain Argument, as well, that the first and Efficient Cause of the Stone

Stone is in the Urine it self, even the most Limpid, and seemingly Inoffensive; as likewise, that the second and Auxiliary Causes, that may produce it, are, if not unsearchable, yet very abstruse, and more unknown, than we imagine.

The practical Reason, why I think it worth observing is this; that when Infants (whose Parents were never troubled with the Stone) are so Young, that they can make no Complaint besides Crying, which they promiscuously use to express every Ailment; they may often be troubled with the Stone, when it is not in the least suspected: There are indeed but few Examples of Children, that are Cut so very Young, and in all my Practice, I have Cut but one Younger, and that was a little Boy but 18 Months Old,

Old, from whom I took away a Stone as big as a Nutmeg, and recover'd the Child.

But that I have had so few Young Children, confirms me the more in my Opinion; for that Infants may be afflicted with this dreadful Distemper almost as soon as they are Born, is evident from Experience: I my self have taken several Stones out of the *Urethra* of some Children within the Month, and of others two or three Months Old, that if the Stone had not been discovered, in all probability must have died in the greatest misery; and that Children die of it so Young, is unquestionable from several, in whom Stones have been found, when opened after their Deaths. The Learned Dr. Tyfon shew'd me such a one which he took out of the Bladder

der of a Dead Child, not above Nine Months Old, which was round and rough on the outside, like a Mulberry, and as big as a middle-siz'd Marble, such as Boys Play withal. Which Stone I question not but has been found amongst the Rarities he left behind him.

It is reasonable therefore always to suspect a Stone in Children, tho' never so Young, where *Carminative* and *Anodyne* Medicines being given without success, the Infants continue to appear in great Torment, especially if twisting their Leggs they foul themselves backwards, at the sametime that they make Water; that being a very great Symptom of the Stone.

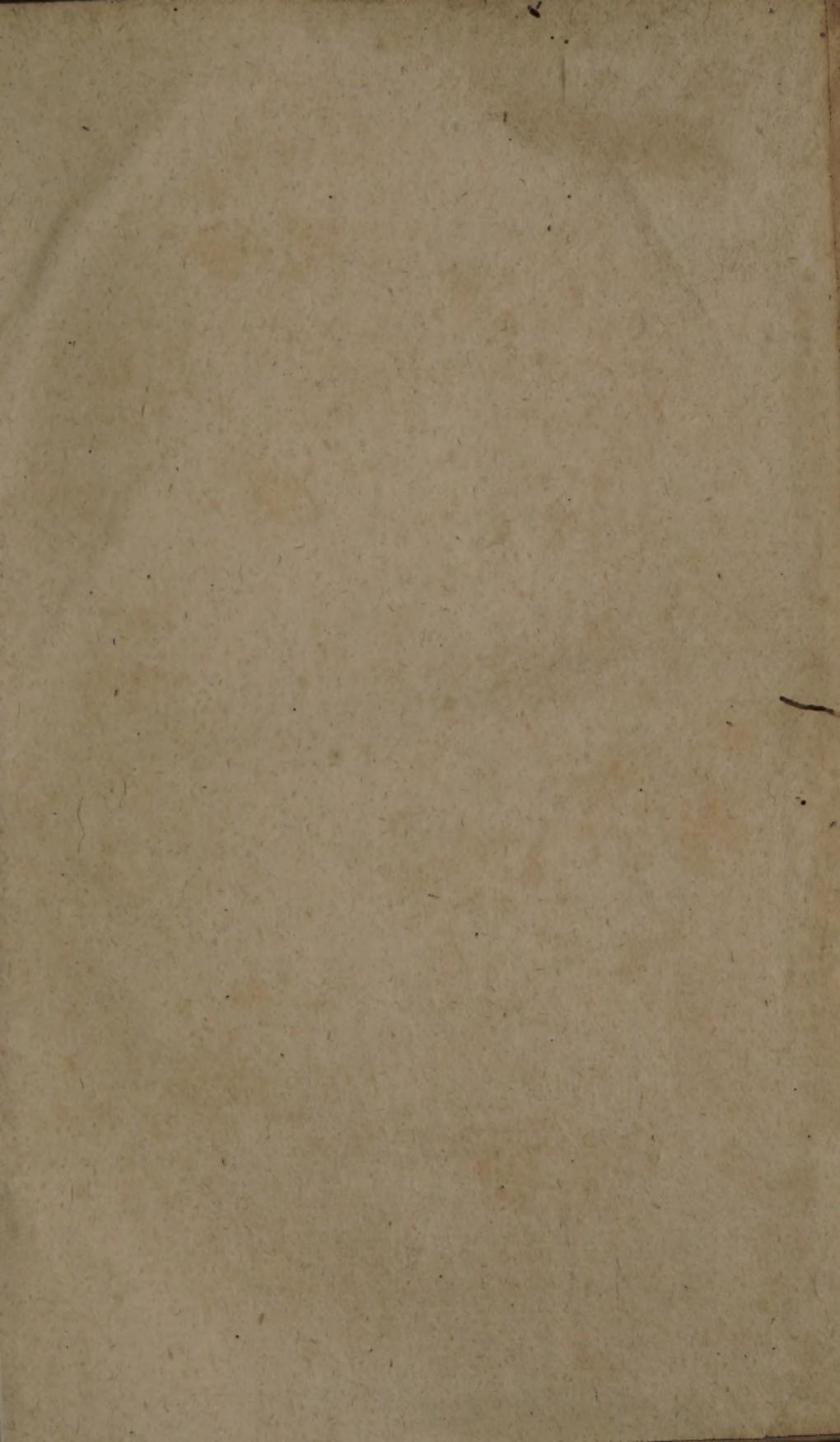
Wherefore I would advise People in such Cases, always to send for an Expert *Lithotomist* to search them;

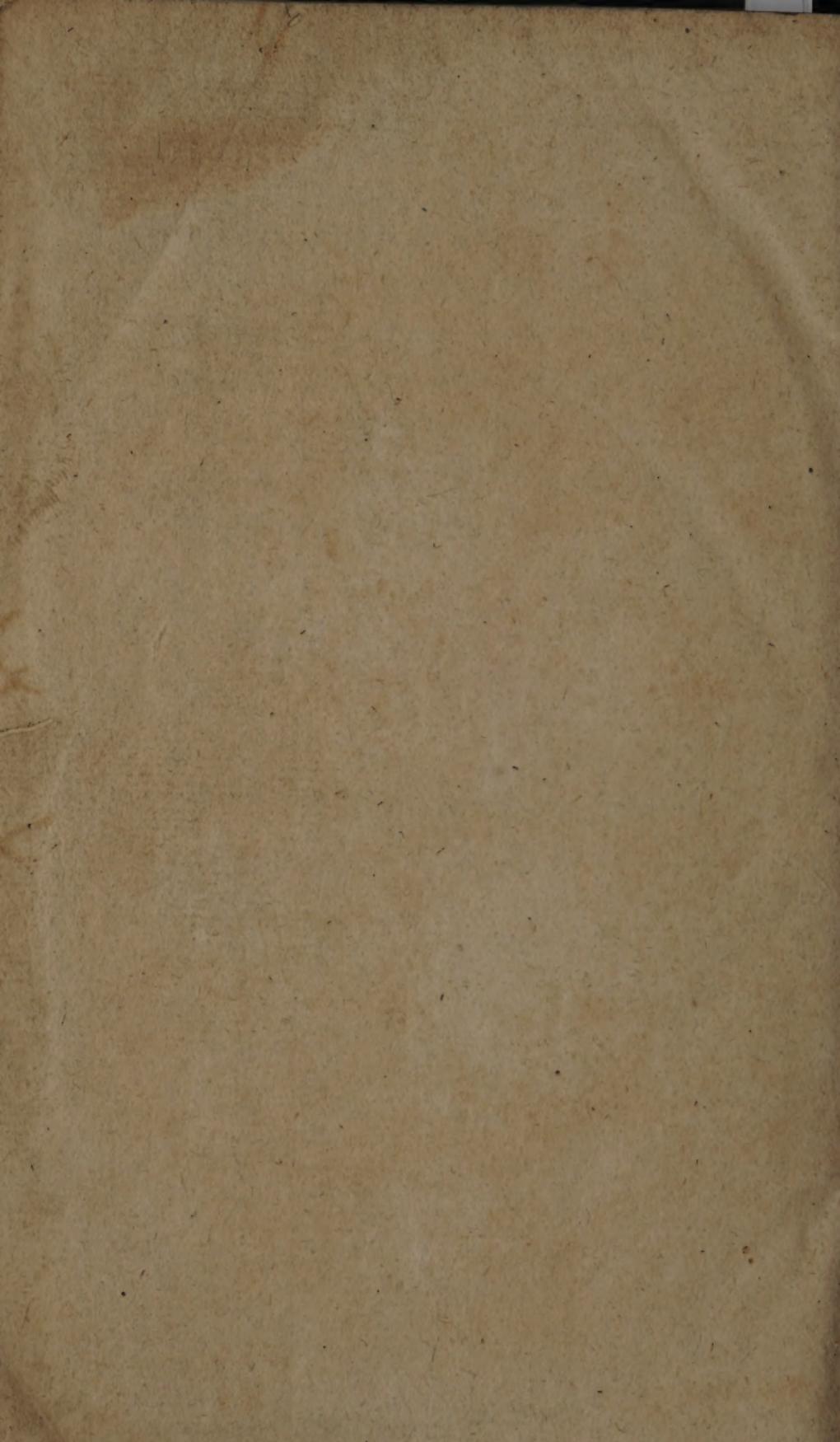
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them ; and if there be no Stone, they are rid of that Fear, and if there be one, it is still a Comfort, that in such a tender Age, *Omnibus Paribus*, the *Operation* is less dangerous and infinitely less difficult than in grown People.

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FINIS.





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